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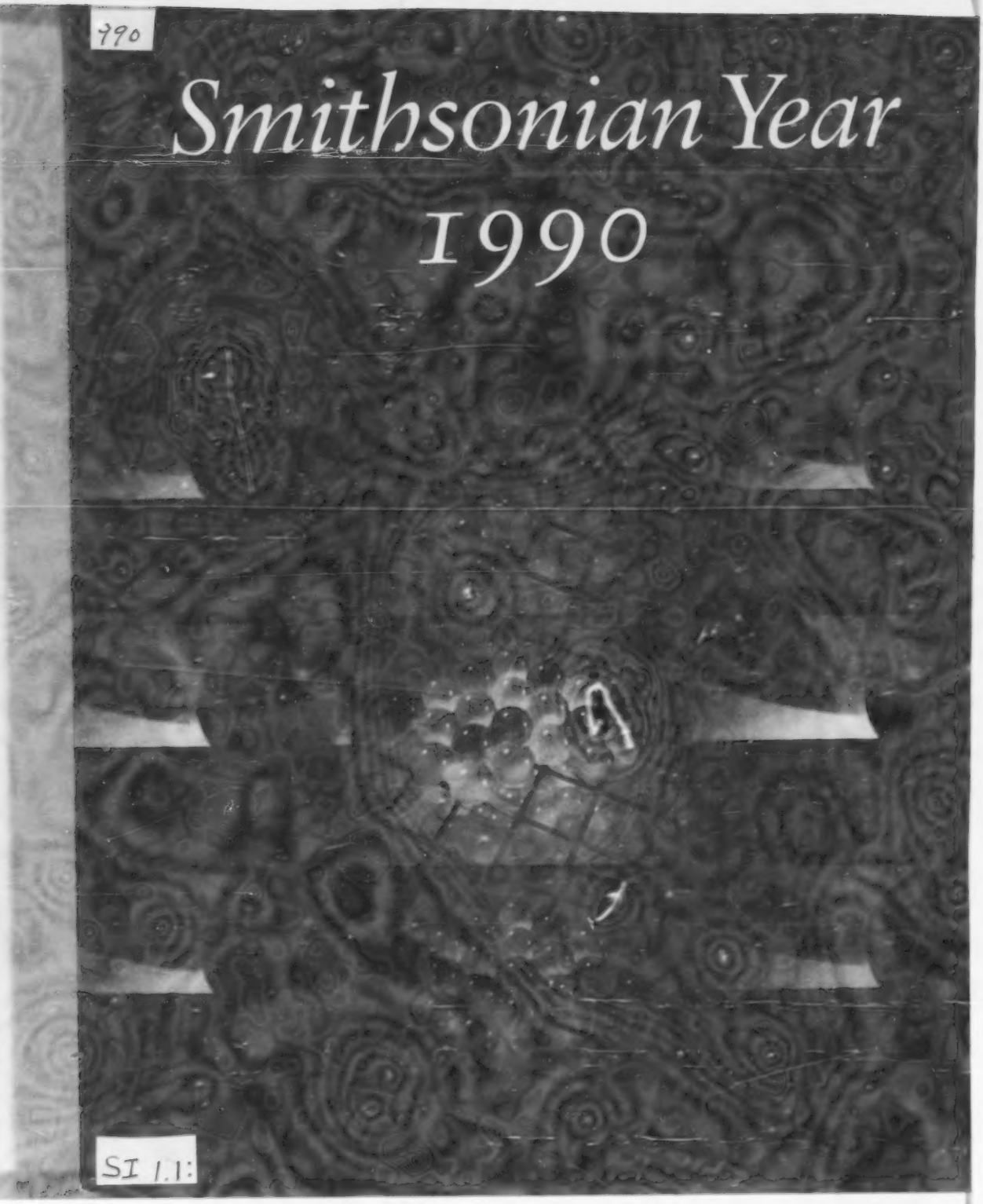
Smithsonian Year

1990



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Annual Report of the Smithsonian Institution for the Year Ended
September 30, 1990

Smithsonian Institution Press Washington, D.C. 1991

The ROSAT satellite, a joint FRG-UK-US space observatory for X-ray astronomy, was launched from Cape Canaveral, Florida, on June 1, 1990. The satellite is equipped with a high-resolution imaging camera built at the Smithsonian Astrophysical Observatory. (National Aeronautics and Space Administration photograph) Inset: Stephen Murray (left), head of the Harvard-Smithsonian Center for Astrophysics ROSAT science data center, and Martin Zombeck, project scientist, demonstrate a computer program that will give scientists the sharpest images of X-ray sources available to date. (Photograph by Joe Wrinn, courtesy of *Harvard Gazette*)

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Appendix 1. Members of the Smithsonian Councils, Boards, and Commissions
Appendix 2. Visitors to Smithsonian Institution Museums
Appendix 3. Academic, Research Training, and Internship Appointments
Appendix 4. Publications of the Smithsonian Institution Press
Appendix 5. Publications of the Staff of the Smithsonian Institution
Appendix 6. The Smithsonian Institution and Its Subsidiaries (*staff lists*)
Appendix 7. Donors to the Smithsonian Institution
Appendix 8. Contributing Members of the Smithsonian Institution

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Washington, D.C. 20560/202-287-3738, Ext. 326

SMITHSONIAN INSTITUTION

The Smithsonian Institution was created by act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." After receiving the property and accepting the trust, Congress incorporated the Institution in an "establishment," whose statutory members are the president, the vice president, the chief justice, and the heads of the executive departments, and vested responsibility for administering the trust in the Smithsonian Board of Regents.

The Establishment, September 30, 1990

George H. W. Bush, President of the United States
J. Danforth Quayle, Vice President of the United States
William H. Rehnquist, Chief Justice of the United States
James A. Baker III, Secretary of State
Nicholas F. Brady, Secretary of the Treasury
Richard B. Cheney, Secretary of Defense
Richard L. Thornburgh, Attorney General
Manuel Lujan, Jr., Secretary of Interior
Clayton K. Yeutter, Secretary of Agriculture
Robert A. Mosbacher, Secretary of Commerce
Elizabeth H. Dole, Secretary of Labor
Louis W. Sullivan, Secretary of Health and Human Services
Jack F. Kemp, Secretary of Housing and Urban Development
Samuel K. Skinner, Secretary of Transportation
Lauro Cavazos, Secretary of Education
James D. Watkins, Secretary of Energy
Edward J. Derwinski, Secretary of Veteran Affairs

Board of Regents and Secretary September 30, 1990

Board of Regents

William H. Rehnquist, Chief Justice of the United States, ex officio
J. Danforth Quayle, Vice President of the United States, ex officio
Edwin J. (Jake) Garn, Senator from Utah
Daniel P. Moynihan, Senator from New York
James R. Sasser, Senator from Tennessee
Silvio O. Conte, Representative from Massachusetts
Norman Y. Mineta, Representative from California
Jamie L. Whitten, Representative from Mississippi
David C. Acheson, Citizen of the District of Columbia
Anne L. Armstrong, Citizen of Texas
William G. Bowen, Citizen of New Jersey
Jeannine Smith Clark, Citizen of the District of Columbia
A. Leon Higginbotham, Jr., Citizen of Pennsylvania
Samuel C. Johnson, Citizen of Wisconsin
Barnabas McHenry, Citizen of New York
Homer A. Neal, Citizen of Michigan
R. James Woolsey, Citizen of Maryland

The Secretary

Robert McCormick Adams

Dean W. Anderson, Under Secretary (through September 1, 1990)
Alice Green Burnette, Assistant Secretary for Institutional Initiatives
James C. Early, Acting Assistant Secretary for Public Service (from February 5, 1990)
Tom L. Freudenheim, Assistant Secretary for Museums
Margaret C. Gaynor, Congressional Liaison
Martin Harwit, Chairman, Council of Bureau Directors
James M. Hobbins, Executive Assistant to the Secretary
Robert S. Hoffmann, Assistant Secretary for Research
Madeleine Jacobs, Chairman, Council of Information and Education Directors
John F. Jameson, Assistant Secretary for Administration
Ann R. Leven, Treasurer
Thomas E. Lovejoy, Assistant Secretary for External Affairs
Marie Mattson, Special Assistant to the Secretary
Thomas McCance, Jr., Director of Membership and Development
Peter G. Powers, General Counsel
Ralph C. Rinzler, Assistant Secretary for Public Service (through February 5, 1990)
Nancy D. Suttenfield, Acting Under Secretary (from September 2, 1990)

Statement by the Secretary

Robert McC. Adams

Now, as at all times in the past, we at the Smithsonian face an array of compelling, but to some degree conflicting, programmatic alternatives. As we weigh choices among them, their potential impact is a major consideration. But impact on what, on whom? On our national well-being? On the worldwide advancement of knowledge or human welfare? On tolerance and mutual respect among nations and peoples? Or to gain greater confidence in what we are measuring, should our concern for impact be focused closer to home—on improving the understanding and participation of our immediate audiences, and on diversifying our staff and programs better to reach those audiences?

Whichever of these directions we choose, there are in any case good arguments for focusing on the impacts of our programs. An emphasis on impact highlights the important qualities of accountability and immediacy. It avoids seeking refuge in received wisdom in order to shield a program from the open marketplace of debate and criticism. And it places a premium on *new* undertakings that respond to current opportunities, problems, demands, or methodologies.

Yet impact cannot serve alone as the determinant of what the Smithsonian must do. Who can say with confidence how much of whatever is today viewed with great hope and excitement will be so viewed tomorrow? We must not forget that the Institution's well-established strengths and areas of programmatic responsibility have withstood the demanding test of time.

There is no simple balance to be struck between these seemingly opposing considerations of tradition and modernity. Neither is quite so unambiguous and clear-cut a programmatic choice as it may seem. There is nothing inexorable about the way the future develops out of the past. The dominant direction of movement can double back upon itself or enter blind alleys and

Pina Lopez-Gay, vice president of the Spanish National Quincentenary Commission, joins Secretary Robert McC. Adams in fielding questions at the signing of a Columbus Quincentenary accord with Spain on February 13 in Madrid. (Photograph by Santos Cirilo, courtesy of El Pais)

The American Indian Theatre Company of Oklahoma performed at the January Martin Luther King, Jr., Holiday Celebration. The event is sponsored annually by the Smithsonian's Cultural Education Committee. (Photograph by Rick Vargas)

have to be abandoned. As we all know, most predictions are flawed. Yet it is no more credible merely to resist or deny change. The old criticism of the Bourbons still has fire, that in forgetting nothing they ensured that they would also learn nothing. All we can do is to carefully weigh the continuing contribution of what is old and the risk, as well as the promise, of what is new—and then resolutely move ahead. To echo the old rabbinical text, it is not our part to finish the task, but neither are we free to desist from it.

I would like to share with you a splendid example of how the traditional and the modern often unexpectedly come together in our business. The noted biologist Jared Diamond gives heartening support in a recent article in the journal *Nature* to a contribution that only museum collections like many of ours can make. For an unappetizing but systematic collection of dead rats in particular, he observes that

> [o]ld specimens constitute a vast, irreplaceable source of material for directly determining historical changes in gene frequencies. Until [the polymerase chain reaction] became available, those data were lost forever as soon as the gene-bearing individual died. Now, however, museums with large, well-run collections of specimen series large enough for statistical analysis will be at the forefront of research in molecular evolution.

In addition, lying in wait just beyond the confines of our own, intramural field of discussion of options are choices that others may perceive—and sometimes may indeed have some influence in making for us. Harsh budgetary reductions, not to be confused with the softer and subtler influences of an atmosphere of constraint on growth, are one example. But it is noteworthy that the threat of these reductions sharply receded after seeming very large for a time during the difficult congressional debates in the summer of 1990.

Hence competing prospects for new museums may provide an example that is more useful in thinking about our choices. Numerous ideas for such projects, apart from those we have generated internally, have repeatedly been put forward as not only plausible but compelling. Advocating them have often been significant groups of scholars, donors, communities, activists, and politicians. During my term of office alone, at least a score of serious proposals that could be so characterized have crossed my desk.

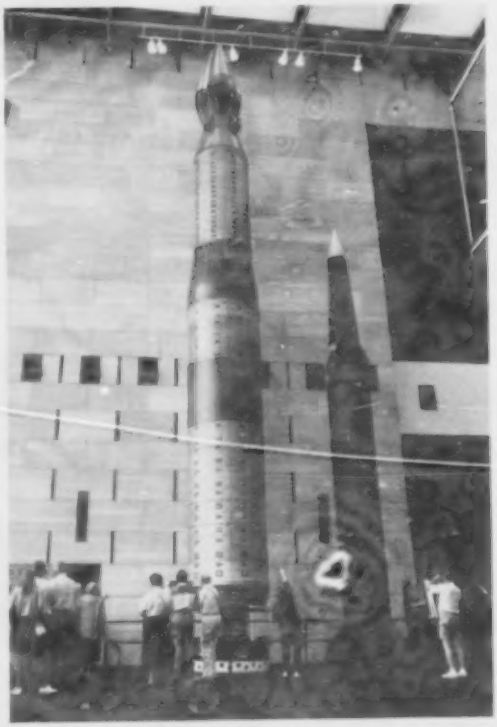
Of all of these, as I am sure you are aware, only the National Museum of the American Indian has at this point received formal congressional authorization and appropriations. It is a pleasure to take note of the convening of its Board of Trustees, broadly representative of Indian people and including other prominent Americans in its membership, and of the appointment of Richard West as its first director. To be sure, we are still at a very early stage in developing this ambitious complex of new museums, collection facilities, and outreach activities. It has only begun to thread its way through the lengthy process of successive appropriations and private fund raising that will be needed for the heart of the whole, unprecedented undertaking to open its doors on the National Mall by the new millennium.

On further reflection, however, the implied ratio of 20 or more serious proposals for every 1 finally adopted is misleading. Almost a quarter of a century elapsed between the formal authorization of the National Air and Space Museum and the first appropriation for its construction. In this light, the building of a great museum might better be described as only the final step, usually preceded by years of efforts to refine and make persuasive the case for it. Planning for the Old General Post Office, across Gallery Place from the National Portrait Gallery, will just begin in fiscal 1991, after the major renovation of that grand but almost derelict building has remained for several years in a similar, unfunded limbo. A major new facility for the National Air and Space Museum, repeatedly approved by our regents for construction at Washington-Dulles International Airport, has yet to advance to the stage of having been authorized. Years of careful negotiations with the U.S. Postal Service preceded the recently announced formal agreement under which the Smithsonian and the Postal Service will collaborate on a new museum that will house our priceless collections in this field.

Taken together, these examples suggest that our cumulative success rate in transforming new ideas into permanent, architecturally embodied realities is better judged on the basis of what is in the whole length of the pipeline than on what is just emerging successfully from the end of it. We need to be mindful, moreover, that many of the best and most interesting suggestions, especially in fields of concern such as cultural diversity, may not involve architectural expression at all. The lesson is simply that the flow of good ideas shows no sign of diminishing. After more or less prolonged study and discussion, an appreciable number continue to find a positive reception. Yet, in aggregate, they will, of course, always far exceed our available resources.

Some degree of tension, therefore, almost always accompanies the choices that must be made. This tension can perhaps be reduced, or at least made more manageable, by delaying expenditures on newer programs. But in the end, decisions on the rate of change and replacement—the rate at which the Smithsonian renews itself—cannot be left entirely dependent on the rate at which programs of relatively declining quality and importance are voluntarily abandoned by their participants. The continued vitality of the Smithsonian, its capacity to respond to the trust for which it was created, instead requires a conscious, directed, and continuous readiness to weigh *and implement* priorities.

Particularly in these difficult times, old and new needs and opportunities must be viewed against a common background of difficult and uncertain budgetary prospects. Both our federal appropriations, surely affected by the general consensus that has emerged between Congress and the president regarding future annual reductions in the deficit, and our trust funds,



In June, the National Air and Space Museum acquired two of the 2,500 nuclear missiles eliminated by the Intermediate Range Nuclear Forces Treaty. On the left is a Soviet SS-20, on the right an American Pershing II. Both missiles are disarmed training versions.

closely tied to the general state of the U.S. economy, will almost certainly not maintain the same rate of growth they have enjoyed in the past. Clearly, our best response to these somber prospects is to put forward a vision of the Smithsonian's future so compelling to external funders that it enables us at least partly to withstand these negative pressures.

Succeeding in this, however, largely depends on achieving an internal consensus that reaches beyond the separate interests of our component parts and articulates a common vision. Projecting such a vision is the best, if not the only, way to ensure the sustaining breadth and depth of national support that we should never simply take for granted. I am not speaking of a leveling, least-common-denominator consensus, but of an energizing, enabling one that stimulates the creative vitality of the Smithsonian staff and so enhances our national appeal.

We properly take pride in, and feel a responsibility to preserve, the great diversity of things the Institution does and stands for. Each of our museums, for example, maintains a focus and integrity—almost a culture—of its own. Each is largely responsible for preparing the annual budgets that incrementally shape its programs by taking on new initiatives at the expense of existing ones. New interconnections among our museums are surely being found all the time by anyone who views a succession of them from his or her own perspective. But there is no Institutional effort, nor do I feel there should be, to force our bureaus into a common mold. There is no objective, however remote, that the domains in which each museum has developed its staff, collections, and circle of support should somehow be made to intersect so as to provide a smoothly continuous web of coverage. All myths of our universality to the contrary, there are many, many things under the sun that the Smithsonian will never find the means to deal with.

Having conceded that, however, I also have a duty to affirm that the Institution is, and shall remain, more than a loose and undirected clustering of autonomous organisms. Our public, our governing and advisory bodies, and all our sources of support expect that we will articulate a well-coordinated effort that maintains a single and consistent set of priorities. Given budgetary realities, it is only in this way that we can preserve the Smithsonian's strengths, while also rising to the challenge of an ever-changing mix of new needs and opportunities.

It is always somewhat threatening to hear of the need for establishing priorities in a cultural or intellectual enterprise. Freedom involves not only recognizing alternatives but having realistic opportunities to pursue some and reject others. An unusual degree of freedom of thought and action is a hallmark of the Smithsonian, one that helps to attract a strong and devoted staff in spite of discouraging pay differentials and other deterrents that we are striving to eliminate. Yet in an institutional framework, with the fierce competition for limited resources that always implies, degrees of freedom cannot be endlessly multiplied to meet all expectations. Any setting of priorities implies a system of incentives and constraints that is inherently unsettling because it is both unequal and dynamic in its application.

As a credible step toward setting priorities, it is appropriate to begin by identifying the traditional, central, incontrovertible core of the Institution's responsibilities. It grows directly out of our chartered responsibility for "the increase and diffusion of knowledge." No less importantly, it is, by dint of the annual recycling of the appropriations process, by now more or less permanently emplaced among the major line items in our budget. But I doubt whether there would, in any case, be much dispute about a basic definition of what these basic responsibilities are:

To maintain the condition of our collections and facilities while deepening the public's appreciation and understanding of them through exhibits, research, and publications.

To advance research in those areas—the Smithsonian Astrophysical Observatory, which has recently celebrated its centennial, is one—where the Institution has a special position of leadership and responsibility.

To respect and justify the national support on which we depend by effectively reaching out to increasingly diverse, geographically dispersed audiences.

I must emphasize once again that acknowledgment of this core is not a rationale for persisting in *all* present activities. Maintenance of continuity is an important principle, but so also is a readiness to differentiate between areas of real strength and significance, whether continuing, new, or emergent, and other areas that have ceased to offer challenges and slipped into routine. So let me now turn to programmatic objectives

that, if in no case entirely new, we are giving renewed emphasis and actively seeking new ways to pursue more effectively.

Paramount among these is a broadening and strengthening of the Institution's outreach to all the varied cultural and ethnic groups making up this nation. Having extensively discussed the issue in this setting a year ago, and on many other occasions since then, I will limit my discussion here. I have urged every office and bureau of the Smithsonian to take this objective with utmost seriousness, as I do myself. In fact, on my agenda for early consideration with our new under secretary is the question of establishing an Office of Cultural Education. It would monitor and be able to take initiatives of its own within this area, while being responsible directly to senior management.

The most basic steps to be taken, since they address deficiencies still far short of being fully corrected, involve equality of staff employment at all levels, independent of color, creed, or gender. Significant aspects of this are, in fact, mandated by law. But the Smithsonian's own tradition of respect for and commitment to cultural conservation requires that our own measures in this direction go beyond merely responding to narrow legal requirements.

Additional responsibilities are imposed by our character as a national institution, dependent on tax resources appropriated in the name of all the people. We cannot lose sight of the importance to those affected of the kind of cultural representation that can be provided in the heart of the nation's capital by our exhibits and educational programs. Accordingly, the inclusive breadth and sensitivity of those programs is a matter of prime importance. Particularly to be commended in this respect is the Sackler Gallery's work with Asian audiences, confronting and learning to overcome the problem of simultaneously improving its relations with very diverse cultural communities.

The annual total of visitors who presumably acquire some familiarity with the Smithsonian is impressively

Glenn Tupper cuts the ribbon at the dedication ceremony in late March of the Earl S. Tupper Research and Conference Center, Smithsonian Tropical Research Institute. Panama's President Guillermo Endara and STRI Director Ira Rubinoff view the ribbon cutting, while STRI employee Monica Alvarado, in traditional Panamanian dress, holds the ribbon. (Photograph by Marcos Guerra)

large. But as our own surveys have shown conclusively, it is a preponderantly white, middle-class, college-educated audience. Minority participation is discouragingly limited. We are unlikely to be more successful in attracting underserved groups unless we recognize our own limitations in conceptualizing as well as implementing programming on their behalf. Our best means of moving forward would seem to be through intensified dialogue with fellow scholars and museum professionals working elsewhere with the same interests. Perhaps equally important are greater, more consistent efforts at networking that establish a durable basis of understanding and cooperation with schools, church groups, community organizations, and the media. An exemplary effort along these lines is the advisory committee that has been meeting under the leadership of Claudine Brown to consider the nature of a proposed African American presence on the National Mall. I look forward to the early completion of this committee's report, which will then receive careful consideration by the Smithsonian's Board of Regents in the spring of 1991.

New acquisitions by the National Museum of American Art in 1990 included Washington Allston's *Hermia and Helena*, painted before 1818. This oil on canvas was purchased through the Smithsonian Institution Collections Acquisition Program and made possible by Ralph Cross Johnson, Catherine W. Myer, and the National Institute Gift.

Also needed is a readiness to develop and experiment with a wider range of themes for new exhibitions, drawing upon external as well as internal suggestions. Our new Experimental Gallery in the Arts and Industries building, opening in January 1991 under the directorship of Kimberly Camp, boldly makes this its organizing principle. An experimental exhibition on looking at art is also scheduled at the Hirshhorn Museum. This greater openness to innovation will require, once again, that we maintain channels of communication and cooperation that extend beyond museum walls and embrace not only professionals elsewhere but community groups and volunteers. Apart from aiming at greater breadth and diversity, I would hope that these outside discussions will establish the atmosphere of informal, candid, and continuing exchange that is based on mutual trust. There simply is no better way to identify overlooked issues and unsuspected racial, ethnic, and other stereotypes that to underrepresented groups may be symbolic and fundamental.

The Smithsonian's second major programmatic priority involves its commitment to the conservation of a worldwide habitable environment. Environmental degradation is proceeding at a frightening rate, in benign, man-altered ecosystems and noxious urban settings, as well as rapidly dwindling natural habitats. Prospects of climatic change at a global scale remain gravely uncertain. Many public and private bodies are acting in concert on these issues, here and abroad. But the Institution's stake is older and more central.

The unparalleled, systematic collections in our National Museum of Natural History are, to begin with, a fundamental tool for all to use in carrying on primary studies both of ecosystemic destruction and of loss of biodiversity. Our Tropical Research Institute in Panama has developed perhaps the longest and most comprehensive record available anywhere of the most actively endangered of all biotas, the neotropical forests. Our major Amazonian project on the biodynamics of forest fragments constitutes perhaps the most direct assess-

ment of the key parameters of destruction. Smithsonian scientists are also engaged in important comparative studies of tropical forests in other world regions. Nor have we ignored the related problems of atmospheric and water-body pollution that are more characteristic of our temperate latitudes, as all the work at our Environmental Research Center on the Chesapeake Bay attests.

These measures and investments all can be assigned to the increase-of-knowledge component of the Institution's mandate, but there is similar activity and commitment under the heading of diffusion. Epitomizing that set of responsibilities is an active, newly established Smithsonian Office of Environmental Awareness. To continue with a very selective listing, there has been a series of conferences, symposia, and media briefings, as well as presentations to members of Congress and federal science administrators by Smithsonian scientists. Work is under way to make our very successful traveling exhibition on tropical rainforests available for museums and educational institutions in Latin America. Honoring the 20th anniversary of Earth Day and its own, more or less simultaneous birth, the *Smithsonian* Magazine devoted a special issue to this subject. The National Zoological Park continues its difficult and valuable program for preserving endangered species, breeding them in captivity, and then, when appropriate, successfully reintroducing them into the wild. In an almost single-handed effort of great effectiveness, Tom Lovejoy has directly introduced a number of key congressional and corporate decision makers to the beauty and fragility of the Amazonian rainforest.

Still to be fully developed in our otherwise very impressive commitment to the conservation of biodiversity and a habitable world is adequate attention to the human dimensions of the problem. Poachers, poor farmers, landless and unemployed city-dwellers, forest products companies, and big ranchers all are agents of destruction in the tropics and elsewhere who respond in their own ways to the inducements and pressures confronting them. Commodity markets, debt, credit, fuel costs, and technology transfer figure in the range of options among which political elites governing those direct agents must choose. National and even international economies in each case generate many of the larger imperatives of their lives. An exploding world of rapid, cheap communications continuously creates new

A student in the summer high school internship program conducted by the Office of Elementary and Secondary Education helps prepare artifacts for display. (Photograph by Jonathan Barth)

wants, styles, and obsolescences. How can at least the lowest level of all these complex processes, the interface between the tree and the human agent of its destruction, not be a subject just as needful of intensive study and understanding as the natural ecosystem?

However, this theme is also one with which I and other Smithsonian spokespersons have dealt previously. It remains as important as ever for us, but I must now turn to an additional priority area. This is an area of opportunity as well as challenge. I speak of our respon-

sibilities for education, surely the central charge in the "diffusion of knowledge" part of our charter.

The Smithsonian's role obviously must be carefully circumscribed, in order for it not to overwhelm our capabilities. This role is one of making a specialized, but by no means unimportant contribution to a huge, decentralized, and frankly rather chaotic undertaking. Properly deployed, our human, exhibition, and collections resources have the potential of improving, supplementing, and perhaps to some extent even redirecting, school-based programs. Our own programmatic emphasis on enhancing the appeal and outreach of museums to more diverse audiences—on broadly embodying and representing America's cultural diversity—leads to a corresponding emphasis in our educational programs on underserved school populations. What is needed is a carefully phased, deliberate approach that will stay the course without quickly becoming discouraged by the magnitude of the problem. James Early has been charged with developing this approach, while not losing sight of the programmatic strengths and limitations that set the parameters of our own involvement.

The crisis in American schooling has been widely noted, but its seriousness warrants further discussion. According to the National Assessment of Educational Progress, "only seven percent of the nation's 17-year-olds have the prerequisite knowledge and skills to perform well in college-level science courses." Combined verbal-math scores are significantly lower today than they were a generation ago, and the absolute number of students scoring above the fairly mediocre level of 800 is 30 percent below where it was in 1972. The *average* Japanese 12th grader has a better command of mathematics than the top 5 percent of his or her American counterparts. Typically, American students rank at or very nearly at the bottom of ranked performances covering most subject matters of students from comparably advanced, industrialized countries. Some 27 million adult Americans are functionally illiterate, and I need not tell you standards of so-called literacy prevailingly are set well below the levels of reading and writing proficiency needed for continued personal and vocational growth in later life.

But we need to look deeper than aggregate statistics. The gulf between per-pupil levels of spending is higher than it has been in 20 years. New York State, for example, spends eight times as much per pupil in some districts as it does in others. Ten states are under court order to develop more equitable funding formulas, and litigation is under way in 10 others. The gulf in quality is even greater than the gulf in dollars, with inner-city schools typically suffering most in the availability of laboratory, art, and other facilities; supplemental, advanced-level programs; and specialized teaching staff. It is evident that there is a prevailing assumption that enriched programmatic content will be essentially wasted on average or underperforming students. That disparity is then further increased by the differential access of students who have been the beneficiaries of enriched programs to higher education.

Widely characteristic of the American public education system, in other words, is a philosophy of "tracking" that has provided, in effect, a mask if not a rationale for systematic deprivation. A recent Rand Corporation study, commissioned by the National Science Foundation, offers a sweeping indictment of tracking that goes to the heart of the equality issue as it affects our whole educational enterprise:

> Although the decisions are usually well-intentioned, considerable evidence suggests that tracking, especially as secondary schools, fails to increase learning generally and has the unfortunate consequence of widening the achievement gaps between students judged to be more and less able.
>
> Although schools may *think* that they ration good teaching to those students who can most profit from it, *we find no empirical evidence to justify unequal access to valued science and mathematics curriculum, instruction, and teachers.*" (Jennie Oakes, "Multiplying Inequalities: The Effects of Race, Social Class, and Tracking on Opportunities to Learn Mathematics and Science," 1990)

In general, I think there is little disagreement on the areas within which the crisis in our national school system is either most concentrated or can best be addressed. Subjects of most critical priority include science and mathematics literacy, especially among minorities and females; environmental education and awareness; knowledge of the diverse cultures of the world; and geography. There is also a fairly wide consensus that an emphasis is needed, and that improvements can be made most readily, at the lower grades of the educational system, and in teacher training.

What special contribution can the Smithsonian make not only to reducing our gross educational inadequacies but to overcoming disparities within the system? These two problems together constitute what may well be the

Smithsonian astrophysicist Margaret Geller was one of 36 people nationwide in 1990 to be awarded a fellowship by the John D. and Catherine T. MacArthur Foundation. The award was given for her work with colleague John Huchra on the distribution of galaxies in space. (Photograph courtesy of Margaret Geller)

most serious social and economic challenge facing us as a nation as we prepare to enter the 21st century. Substantial and fruitful discussions of the Smithsonian's role in education questions have been going on within the Institution during the past year. It may be premature to suggest that a full consensus has been reached, but I believe I can outline tentatively what at least a few elements of such a consensus are likely to be:

1. Museums traditionally highlight static objects, but are mastering the arts of dynamic display that permit them to portray interrelationships, change, and process with almost equal vividness and explanatory power. The National Portrait Gallery, for example, is planning to incorporate biographical materials in 20th-century media such as radio and television in its exhibits, as well as in its study collections. Museums will increasingly teach and communicate, in other words, across virtually the entire range of visual and oral experience. They can call into question arbitrary definitions and force a broadening of traditional categories, as does the newly acquired Hemphill Collection at the National Museum of American Art for the whole field of American art. Thus they can provide an enormously powerful supplement and corrective to classroom and textbook learning. They have special advantages in making intelligible the many complex systems that students must learn to move through and manipulate in the course of their lives.

Global environmental change illustrates the need in this area that we should try to fill. It is characterized by many interdependent variables and grave uncertainties, especially about diverse regional outcomes that may range from benign to catastrophic. Only displays that permit these challenges to be viewed across time, at different geographical scales, and on the basis of diverse bodies of data can truly communicate them.

Last spring saw the opening at the National Museum of American History of a permanent, brilliantly detailed and enormously thought-provoking exhibition on the Information Age. This is a pioneering exposition of the growth of a complex system of an entirely different kind, with enormous educational potential. Our many contributions to the forthcoming Columbus Quincentenary represent another ambitious effort to convey a complex, multidimensional message. In this case, major exhibitions in a number of our museums and a television series will view the five-century encounter of different cultural traditions, and the emergence of entirely new ones as a result, through entirely different media and from highly contrastive perspectives. I doubt that the richness of texture we invite our visitors to see in the process could be as persuasively conveyed in any other way. For the same reason, the entire ensemble will offer an unparalleled learning experience in the highly diverse and pluralistic character of a hemispheric

experience that finds no serious reflection in current school textbooks.

2. Distinguishing the Smithsonian is an ongoing combination, a happy marriage, between research and exhibition and other forms of outreach to a vast audience. Many individuals on our staff are concurrently involved in both. This encourages a linkage of living processes of scholarly and scientific discovery with the products of such discoveries. It directly inculcates the attitudes of identifying researchable problems, of framing open-minded and orderly procedures of analysis, of following new findings wherever they may lead. We would appear to have much to offer as a setting in which to establish and illustrate learning as an attitude rather than a barrier. This suggests that we assume a responsibility to develop institutional mechanisms that encourage some form of direct access between young people and ongoing scientific and scholarly work. Hands-on experience with collections and exhibit preparation form a considerable part of that arena of the Institution's work, and should be especially amenable to a mentoring approach.

3. The stance of the Smithsonian with regard to the educational part of its chartered responsibility for the "increase and diffusion of knowledge" must be to enhance educational opportunities for all. Certainly it should not be to reinforce prevailing practices that have long tended to "track" and thus constrain the access of young people to the better and fuller life that only education can offer. It is a broad and diverse spectrum of young people that this Institution is best qualified to attract and work with, not merely a selection who come to us already designated as high performers.

4. It is always a surprise to find that there are already numerous initiatives at the Smithsonian in a field such as educational outreach, frequently failing to pool their knowledge and efforts and often in ignorance of one another. With this in mind, Ann Bay and Zahava Doering are developing a comprehensive Educational Programs Inventory on the basis of questionnaires that will help provide a framework for sharing information.

5. A troubling feature of our existing Institutional arrangements is that they seldom permit an evaluation of our effectiveness in reaching young people or any long-term contact with the same individuals. Real teaching involves iteration, reinforcement, dialogue. "Longitudinal" contact, not in chance one-day visits to our museums but in long-term interaction, affords the best, self-correcting measures of our effectiveness. Some may argue that the Smithsonian should presently act upon this understanding by developing its own version of a comprehensive educational program, possibly even in its own classrooms. The Resident Associate Program has, after all, succeeded on that basis in developing an enormously successful "open university" whose programs in some instances are directed to students at the primary and secondary levels. Doing so more directly and extensively might be unwise, however, since our basic stance should be to cooperate rather than compete with existing school systems.

6. As this suggests, the Smithsonian's efforts in education should continue to rely heavily on the principle of *collaboration* with other institutions and organizations. It has already served us well in our joint sponsorship with the National Academy of Sciences of the National Science Resources Center (NSRC). Since opening its doors in the Arts and Industries Building four years ago, the NSRC has come to occupy a position of leadership as a national information clearinghouse on science teaching resources. Through the field testing of its *Science and Technology for Children* curriculum units, the center is developing a close working relationship with a broad range of school systems serving approximately one million children—about 5 percent of the children in the nation's elementary schools. Its information data base of science teaching materials is being expanded to include resources for middle schools, and the prospective publication of a resource guide for middle school science teachers will signal the expansion of the NSRC program to secondary school levels.

More recently, we have also joined in sponsorship of an innovative series of enrichment programs. Entitled the District of Columbia Science and Engineering Regional Center, this new consortium is headed by Howard University and funded by the National Science Foundation. With promising efforts like these already under way, we may want to move on to more direct modes of cooperation with individual schools or school districts.

All the areas and programs whose high priority I have reviewed involve concerns and actions that are widely distributed in the Institution. In closing, however, I want to deal with the goals of an ongoing man-

A group takes notes during one of the science workshops being conducted for young people at the Anacostia Museum. (Photograph by Harold Dorwin)

Students from the Jelleff Boys and Girls Clubs of Washington, D.C., find Yokohama on an illuminated map of Japan in the Sackler Gallery Learning Center as docent Christine Lee (right) looks on. (Photograph by Jeffrey Crespi)

agement reorganization during the past year that is concentrated in the Castle. This should be thought of as a response, overdue but still unfolding, to bureaucratic problems of delay, nonresponsiveness, and ineffectiveness. Typically, these problems grow in small, almost unnoticed increments. Those of us in senior management have too easily dismissed this trend as part of a general drift toward the increasing cost and complexity of running almost any kind of organization or business. But the time is at hand to see it as a symptom of a pervasive, systemic illness, and to correct it.

As we are all aware, the Smithsonian has grown enormously over the past generation or so. That growth is a measure of the successful adaptation of the Smithsonian's mandate to new needs and opportunities. Impressive new museums welcome an unparalleled flow of visitors to Washington. The rate of growth has been even greater in other public programming, and in the scope and diversity of our research. Yet the painful side effect is that traditional modes of management no longer are well suited to the Institution's changing set of programmatic priorities. A service orientation is less and less evident in essential, and what should be fairly well-established service functions, including but not limited to some of those concerned with personnel, payroll, accounting, procurement, and development. Tending to replace it—not uniformly but too frequently—is a focus primarily on internally generated goals and standards of performance. When that happens, individuals and whole offices can become impediments rather than facilitators of the prompt and responsive actions that not only our operating units but our public and our oversight bodies expect of them.

A service orientation must extend to the highest levels of the Smithsonian. To be sure, there are increasing numbers of demands to distract us. Fiduciary accountability is the most familiar one, but to it now are added compliance with environmental safety, public access, equal employment opportunity, and many other bodies of regulations. Our very success, the centrality the Smithsonian has achieved as a national cultural institution, makes the actions we take or fail to take more consequential for our many public constituencies. Moreover, in the public arena there are no crisp formats for decision making. Dialogue and diffuse consensus building are the order of the day. All of this undeniably presents new and unprecedented challenges to management. But we must never lose sight of the fact that a service orientation is fundamental.

Nancy Suttenfield has rendered a signal service to the Smithsonian in the months since Dean Anderson's departure in the summer of 1990. Under her direction, plans are moving forward to streamline our administrative structures, not only to improve our overall efficiency but to capture additional resources for the operations for which we exist. In December, she assumed the permanent position of assistant secretary for finance and administration. John Jameson, who has long rendered exemplary service as assistant secretary for administration, has accepted an assignment as senior adviser to the Secretary with primary responsibilities for many important aspects of long-range facilities planning.

It is with great pleasure that I also welcomed Carmen Turner as the Institution's under secretary in mid-December. Hers is an extraordinary record of dedicated public service, culminating in her leadership of Washington Metro as its chief executive officer. She is a self-described "people person," and the Smithsonian *is* people. We could not have found someone more marvelously qualified than she to address these management challenges—nor someone more deeply sympathetic with the priorities the Smithsonian has set for itself.

As she has said to me before, she views the Smithsonian as a new hill to climb. It is a steep but very rewarding hill. As our activities are geographically so dispersed, I might be tempted to say that she will find this a hill from which one sees far afield. But I know she already does that. The more vital point is that this great Institution will call upon her for all the powerful guidance in management she can provide, as we take steps to ensure that it attains the full potential, quality, and range of its influence.

The Year in Review

The Smithsonian entered the last decade of the twentieth century with a heightened commitment to remaining at the forefront of today's complex issues and preparing for a future of continued social, economic, and environmental challenges. By acquiring and transmitting knowledge about our diverse material and natural heritage through its collections, research, exhibition,

A child in a North Carolina cotton mill (1908) turns her back on her work in this photograph from the exhibition "From Parlor to Politics: Women and Reform in America, 1890–1925" at the National Museum of American History. The struggle to end child labor in the United States is part of the history of the exhibition.

and education programs, the Smithsonian provides a touchstone for Americans living in an increasingly transitory age. As the scope and rapidity of global change transforms our world into a global community, the Smithsonian's service reaches even further, and its impact will be even more significant. Through the multifaceted activities of its bureaus and offices, the Smithsonian contributes to people's understanding of the historical and scientific foundations of today's world, increases their sensitivity to our society's diversity, and stimulates their concern for the fragility of the global environment. These are all qualities that an informed citizenry needs to meet the challenges of the coming century.

Throughout the Smithsonian in 1990, programs, exhibitions, research, and other activities reflected the Institution's ongoing commitment to preserving, stimulating, and presenting cultural and biological diversity. Earth Day 1990 was observed with symposia, conferences, and a special anniversary issue of *Smithsonian* magazine. "The Global Environment: Are We Overreacting?" a two-day conference sponsored by the Office of the Assistant Secretary for External Affairs and attended by about 150 leading environmental scientists and members of the media, pointed to the need for urgent action on environmental problems during the next decade. National Museum of Natural History researchers presented a series of briefings on the history of global change to members of Congress, science administrators, media representatives, and the public. The museum also organized a day-long forum, "Earth Day 1990: Shaping a New Environmental Agenda." Renewed public interest in environmental issues prompted the creation of the Smithsonian's Office of Environmental Awareness, with the mandate to increase understanding of the critical problems facing our planet. *Smithsonian* magazine, which was founded 20 years ago at the time of the first Earth Day, devoted its April issue to the state of the environment.

One of the year's most significant events pointed to new horizons for the Institution: the establishment of the National Museum of the American Indian, the 15th museum in the Smithsonian complex. Legislation establishing the museum, which President George Bush signed into law on November 28, 1989, calls it a "living memorial to Native Americans and their traditions." This year, plans for the museum were set into motion, beginning with the appointment of a board of trustees and a director, W. Richard West, Jr. In June, the collections of the Museum of the American Indian, Heye Foundation, were transferred to the Smithsonian.

Inspecting a model of the innovative Experimental Gallery space are Kimberly Camp (right), gallery director, along with (left to right): Freida Austin, gallery assistant; Walter Sorrell, assistant director, Office of Exhibits Central; George Quist, OEC modelmaker; Ken Young, OEC, Experimental Gallery project designer; and David Hay, architect, Office of Design and Construction. (Photograph by Laurie Minor)

From its beginning, the museum is setting out to change the traditional approach to presenting the culture, traditions, and values of Native American people. With its collections as the centerpiece, the museum will develop interdisciplinary programs that explore Indian culture from the perspectives of history, art, music, dance, and drama. The planning process involves extensive formal consultation with Indian tribes from throughout the country.

The first of three components of the National Museum of the American Indian, the George Gustav Heye Center, is scheduled to open in late 1992 in the old U.S. Custom House in lower Manhattan. Construction of the Mall museum, next to the National Air and Space Museum, is slated to begin in the mid-1990s. A storage, research, and conservation facility will be located at the Museum Support Center in Suitland, Maryland.

Smithsonian museums traditionally have developed their own African American research, exhibition, and education programs, but this year the Institution began to assess potential new directions. In an important initiative launched during fiscal year 1990, the form and content of an African American "presence" on the National Mall is being considered. An advisory committee of scholars and authorities on African American art, history, and culture is studying various options for establishing a new African American presence, which include but are not limited to a new museum, a research center, and a trust for existing African American museums. The committee's final report is expected in early 1991.

The Smithsonian marked three anniversaries this year, beginning with the centennial of the Smithsonian Astrophysical Observatory, the internationally recognized research center established by aeronautical pioneer and Smithsonian Secretary Samuel Pierpont Langley in a modest observatory behind the Castle. The National Museum of American History celebrated its 25th anniversary with the opening of its largest permanent exhibition ever, "Information Age: People, Information, & Technology." In honor of *Smithsonian* magazine's 20th anniversary, the Smithsonian Institution Press published *Editor's Choice*, an anthology of the best of the magazine's first two decades.

Looking ahead to the observance of the 500th anniversary of Columbus's landfall in the Americas, Smithsonian bureaus and offices continued planning for more than 100 programs, including exhibitions, conferences, and television and radio series. Quincentenary programs announced this year include a 13-part radio series about the Columbus encounter from the Native American perspective, to be produced by the Office of Telecommunications in collaboration with the Native American Public Broadcasting Consortium. The Corporation for Public Broadcasting has contributed $224,000 toward production and distribution of the series.

Visitors this year to the Smithsonian's 14 museums numbered 25 million, a slight increase over last year's total. Earth Day, April 22, was an especially busy day for Mall museums. The new Smithsonian Information Center was a popular drawing card for Mall visitors throughout the year. In its first 10 months of operation, the center served more than 1.5 million people, making it the fourth busiest Smithsonian facility. Exhibitions and public programs also attracted large numbers. More than 750,000 people visited the National Museum of American History's "Information Age" exhibition from its opening in May through September 30. "Masterworks of Louis Comfort Tiffany" drew 230,000 visitors to the Renwick Gallery of the National Museum of American Art, a record number for the gallery. Exhibitions circulated by the Smithsonian Institution Traveling Exhibition service took the Smithsonian beyond the National Mall to approximately 11 million people in 42 states and the District of Columbia plus Africa, Canada, and India. In 1990, more than 323,000 people of all ages enjoyed nearly 2,000 activities offered by the Resident Associate Program.

Visitors to the National Mall can now begin their tours at the new, state-of-the-art Smithsonian Information Center, which opened in the Great Hall of the Castle in November. Volunteer information specialists have multimedia assistance in the form of interactive videodisc programs in seven languages, an orientation video shown in twin theaters, electronic wall maps, and monitors describing daily activities at the Smithsonian. The new facility is the centerpiece of the six-year effort of the Visitor Information and Associates' Reception Center (VIARC) to improve visitor information and orientation services.

A dedicated corps of volunteers provides invaluable service to the Smithsonian each year. Whether conducting tours of exhibitions, staffing visitor information desks, or working behind the scenes, volunteers bring enthusiasm, experience, and versatility to the task of helping the Institution serve the public. This year, VIARC's 650 information specialists carried out a variety of public information duties, and 1,200 volunteers provided short- and long-term assistance through the VIARC Behind-the-Scenes Volunteer Program. More than 400 volunteers contributed 26,000 hours to the Resident Associate Program's activities. Members of the Women's Committee of the Smithsonian Associates gave more than 7,000 hours of service to the Smithsonian. At the National Zoological Park, a record 750 Friends of the National Zoo (FONZ) volunteers worked 67,000 hours.

Efforts to attract a more culturally diverse group of volunteers brought success this year. Nineteen percent of those who participated in VIARC's training classes

Museum technician Daniel Chaney is seen here preparing a fossil whale, one of the specimens on view in the new Natural History permanent hall, "Life in the Ancient Seas," which opened in May. (Photograph by Chip Clark)

represented minority constituencies, while the National Museum of American Art's new docent recruitment program also attracted more minority volunteers.

The foundation of the public service the Smithsonian provides are its exhibitions, public programs, research activities, and collections.

Exhibitions

The exhibitions mounted each year in the Smithsonian's museums are one of the most important links between the public and the Institution's multifaceted collections. By joining objects with ideas and information, Smithsonian curators, educators, and exhibit designers create settings that recount aspects of history, explain scientific principles or technological developments, or trace the evolution of an artistic style or movement. Exhibitions at the Smithsonian both enlighten and entertain, and they are designed to appeal to people of all ages, interests, and backgrounds. A Smithsonian exhibition can be a large-scale overview of a complex topic or an intimate glimpse of objects or ideas. The permanent and temporary exhibitions presented in the past year represent the full gamut.

The largest permanent exhibition ever organized by the National Museum of American History opened in 1990. "Information Age: People, Information, & Technology" explores the evolution of information-processing and communications technologies and the impact of technology on our society. The 14,000-square-foot exhibition is a technological innovation in itself. An impressive number of sophisticated interactive devices stimulate visitor involvement, including computer-driven video stations and a bar-coded brochure that enables visitors to print out a computerized record of their activities.

Another large-scale exhibition opened in 1990: the National Museum of Natural History's "Life in the Ancient Seas." The new hall is the first permanent exhibi-

tion focusing on prehistoric marine life ever constructed by a major U.S. museum. Its opening marked the completion of a 15-year project to renovate the museum's paleontological exhibits.

An eclectic assortment of art forms—from American paintings to the decorative arts to doghouse architecture—was represented in the galleries of the Smithsonian's art museums this year. The Hirshhorn Museum and Sculpture Garden organized a major retrospective of the British painter Francis Bacon to coincide with the artist's 80th birthday. The well-received exhibition went on national tour following its showing at the Hirshhorn. The largest and most complete exhibition of the work of nineteenth-century painter Albert Pinkham Ryder was held at the National Museum of American Art. In addition to nearly 80 paintings, the exhibition displayed a dozen of the more than 100 forgeries of Ryder's work and included a special technical section, organized in collaboration with the Smithsonian's Conservation Analytical Laboratory, explaining why many of the artist's paintings have deteriorated.

The Arthur M. Sackler Gallery, a museum of Asian art and one of newest in the Smithsonian family, mounted its first exhibition of Japanese art. "Yokohama: Prints from Nineteenth-Century Japan" included 85 color woodblock prints depicting scenes of this trade city and its residents' first views of Westerners following Commodore Perry's mission in 1853. A major loan exhibition organized by the National Museum of African Art, "Icons: Ideals and Power in the Art of Africa," explored varied interpretations of five traditional iconic themes by different African peoples.

"Irving Penn Master Images," a collaborative effort of the National Portrait Gallery and the National Museum of American Art, included the 120 master photographs that the noted photographer gave to the two museums. The Anacostia Museum's summer exhibition "Whose Art Is It, Anyway? The Arts in Public Places" explored the many forms that public art takes, from sculpture to clothing and hair styles. "Masterworks of Louis Comfort Tiffany," the highlight of the year's exhibitions at the Renwick Gallery of the National Museum of American Art, featured 65 examples of the artist's genius; some of the objects had never been lent to a museum exhibition. Cartoonist Pat Oliphant's caricatures, sketches, and sculpture were the focus of "Oliphant's Presidents: Twenty-Five Years of Caricature," one of the most popular exhibitions ever held at the National Portrait Gallery. The whimsical exhibition "The Doghouse" at the Cooper-Hewitt National Museum of Design was a flight of fancy for the architects and designers who were invited to create their visions of the ideal canine residence.

The complex vitality of American society was evident in the themes of a number of exhibitions this year. "To Color America: Portraits by Winold Reiss," a group of images of the nation's many ethnic groups created by a German-born artist, brought new audiences to the National Portrait Gallery. The National Museum of American History presented "From Parlor to Politics," an exhibition about women's emerging social consciousness during the Progressive Era, 1890–1925. Contemporary life in a Hispanic neighborhood in Albuquerque, New Mexico, as shown in photographs by Miguel Gandert, "VSJ—Varrio San José: Scenes from an Urban Chicano Experience," was the theme of another exhibition at the National Museum of American History.

Even permanent exhibitions are subject to change to ensure that they are based on the most up-to-date thinking and are accessible to visitors with a variety of interests and learning styles. Museum staff at the Smithsonian regularly evaluate the content and effectiveness of exhibitions and make revisions based on the results. At the National Museum of American History this year, "After the Revolution: Everyday Life in America, 1780–1800" has been temporarily closed while curators, educators, and designers revise its content and design. For "Field to Factory: Afro-American Migration 1915–1940," new interpretive material is being developed for younger visitors. The Smithsonian Institution Traveling Exhibition Service is working with the Office of Exhibits Central to reconfigure the popular environmental exhibition "Tropical Rainforests: A Disappearing Treasure" for museums and educational groups in Latin America. At the National Air and Space Museum, new images of Neptune and Triton obtained by Voyager 1 in 1989, along with a meteorite believed to have come from Mars, were added to the Exploring the Planets gallery. Following the opening of "Life in the Ancient Seas," next on the agenda at the National Museum of Natural History is the replacement of its outdated geology exhibits with an innovative new hall, "Geology, Gems, and Minerals."

In the future, museum staff will be able to test exhibition techniques before they are actually installed. Work was almost completed in 1990 on the Smithsonian's new Experimental Gallery, a laboratory setting in which both fully realized exhibitions and exhibitions-in-progress can be tried out on visitors. This year, the National Museum of American History inaugurated an Exhibition Preview Area in which staff can test visitors' reactions to concepts and techniques being considered for future exhibitions.

Public Programs

The Smithsonian is not just a complex of museums and research entities, but a gathering place for a "community" that extends throughout the nation and the world. The millions who visit the Smithsonian each year—and millions of others who experience the Institution through television, radio, and the printed word—enjoy it as a place to learn, be entertained, and engage in dialogue with others. Public programs and events for a variety of audiences give greater dimension to the Smithsonian's other activities, from the exhibitions presented in its museums to the efforts to preserve and document tropical biodiversity.

The Institution's mandate for serving a diverse public was evident this year in public programs that reflect the variety of our cultural heritage. Highlights included "African American Dance: Beauty, Rhythm, and Power," presented by the Program in African American Culture at the National Museum of American History, which explored the roots of African American dance and its impact on American dance forms. Other programs at the museum focused on the genius of Duke Ellington and the influence of gospel music on the development of jazz.

Nineteen weekend presentations of Native American crafts drew up to 1,500 people a day to the National Museum of Natural History. The museum also hosted the American Indian Theatre Company of Oklahoma, which attracted standing-room-only crowds.

At the National Portrait Gallery, the popular Cultures in Motion program continued to present a multicultural view of American history through lectures, symposia, one-person biographical plays, recitals, concerts, and storytelling. The gallery also organized "The Politics of Portraiture," a symposium accompanying the Winold Reiss exhibition that considered the approaches artists take to creating images of our multicultural society.

The local community is a resource for Smithsonian museums as they develop programs for multicultural audiences. The Arthur M. Sackler Gallery worked with Asian communities in the Washington, D.C., area to develop learning centers featuring books, films and videos, maps, photomurals, and hands-on objects to enhance its exhibitions of Asian art. A comfortable "reading corner" for "Yokohama: Prints from Nineteenth-Century Japan" contained traditional Japanese furnishings and books about Japanese history and culture.

Celebrations of the nation's diverse heritage take place year-round through observances of Asian/Pacific American Heritage Week, Black History Month, Hispanic Heritage Month, and Native American Week. Lively performances of music, dance, and theater, crafts demonstrations, and lectures and seminars illuminate the traditions that together shape a uniquely American culture. The annual Festival of American Folklife brought living exhibitions of diversity to the National Mall again this summer. This year's festival featured the cultures of the U.S. Virgin Islands and Senegal and highlighted the musical expressions of contemporary protest movements in "Musics of Struggle."

The Institution-wide commitment to presenting cultural diversity was reflected in the Office of Public Affairs' outreach and collaborative efforts with diverse communities. A new bimonthly newsletter, *Smithsonian Runner*, brings information about the National Museum of the American Indian and other Smithsonian programs of interest to Native Americans to a nationwide readership. Through its Black Media Outreach Program and Hispanic Media Outreach Program, the office fosters communication with the media about the Smithsonian's many programs for African American and Hispanic audiences. This year's activities included the development of a media plan to increase the coverage of programs, activities, and resources of interest to African Americans and an exhibition promoting the Smithsonian at the National Hispanic Media Conference.

A number of Smithsonian programs and events are eagerly anticipated annual traditions. A sure sign of spring is the Resident Associate Program's kite festival

on the grounds of the Washington Monument. The 24th festival, held in March 1990, attracted 5,000 people. Crafts artists from around the country are in the spotlight at the Washington Craft Show, sponsored each April by the Women's Committee of the Smithsonian Associates. A Smithsonian holiday tradition is the Office of Horticulture's "Trees of Christmas" exhibition at the National Museum of American History. At the Anacostia Museum, a community celebration of Kwanzaa marks this African American holiday each December. Every April, the National Air and Space Museum's Paul E. Garber Preservation, Restoration, and Storage Facility opens its doors to thousands of visitors for a behind-the-scenes look at the intricate work of preserving and restoring historic aircraft and spacecraft.

Whether on a summer vacation trip or a Saturday morning outing, the Smithsonian is a popular site for a family visit. This year, most of the museums offered programs especially designed for families to enjoy together. Nomad Family Day at the National Museum of Natural History, held in conjunction with the exhibition "Nomads: Masters of the Eurasian Steppe," featured a riding demonstration, costumes, crafts, and folklore. A Family Day celebration during the National Museum of American Art's exhibition "Treasures of American Folk Art from the Abby Aldrich Rockefeller Folk Art Center" featured music, dancing, workshops, and a magic show and attracted 2,000 people. New interpretive programs for families and children were presented during Super Week at the National Museum of American History in an effort to expand visitor involvement in exhibitions.

Through teacher training workshops, museum programs for students, publications, and curriculum materials, the Smithsonian brings its rich resources into classrooms across the nation. A central point of contact for teachers is the Office of Elementary and Secondary Education (OESE), which helps teachers—and ultimately their students—make the most of what the Smithsonian has to offer. Among OESE's innovative programs this year was "Word of Mouth," a symposium for Washington, D.C.–area teachers on incorporating multicultural oral traditions—such as oral history and theater—into conventional classroom activities. The weekend event was cosponsored with the National Museum of American History.

The National Museum of Natural History held the Natural Science Institute for Teachers of Minority Students, designed to help teachers of grades 4 through 12 understand and interpret natural history objects. The National Science Resources Center brought together teachers, school administrators, and scientists from around the country for the second Elementary Science Leadership Institute to stimulate the implementation of effective elementary science programs.

Programs in Smithsonian museums and bureaus nurture young people's interest in choosing museum work as a career. The National Museum of American Art held a Career Awareness Program this year for area high school students. Under the auspices of the Office of Elementary and Secondary Education, recent graduates of urban high schools experienced the Smithsonian behind the scenes through eight-week internships.

Ensuring access to Smithsonian activities for visitors with special needs continues to be a priority of several museums. With its exhibition "The Doghouse," the Cooper-Hewitt National Museum of Design launched a major effort to make its buildings and programs accessible to visually impaired visitors, an audience not usually served by art museums. Changes suggested by the Arthur M. Sackler Gallery Accessibility Council, which reviews every new exhibition at the museum from the perspective of the disabled visitor, have been incorporated into exhibit design at the museum. The National Museum of African Art received a grant from the Smithsonian Women's Committee to fund educational materials and programs—including open-captioned films and a telecommunications device—for deaf and hearing-impaired visitors.

In keeping with the biological park, or biopark, concept, every aspect of the National Zoological Park—from public programs to animal exhibits—transmits a critical educational message about threats to global biodiversity and environmental quality. Visitors were able to engage in many activities this year, from observing the complex world of a drop of water through a microscope equipped with a video camera to watching animals through binoculars and participating in hands-on demonstrations led by volunteers.

Again this year, the Smithsonian offered a full schedule of live performances and films. Star-studded film premieres—which included the first Washington, D.C., showings of *Glory*, *Henry V*, and *The First Emperor of*

China, are a hallmark of the Resident Associate Program (RAP). RAP also presented performances by such artists as Brazilian guitarist Toninho Horta, the Twentieth Century Consort, and the Institution's own Smithson String Quartet, Smithsonian Chamber Orchestra, Smithsonian Chamber Players, and the Castle Trio. The National Zoological Park added theater to its repertoire of education programs with a production of *Young Charles Darwin* and a musical comedy about dinosaurs.

Through radio, television, and the printed word, the Smithsonian extends its impact to a wider public and disseminates the results of research conducted by Smithsonian scholars. More than 100 radio stations across the country broadcast a series on the intellectual life, politics, and natural resources of the Caribbean, featuring prominent Caribbean scholars and political leaders and held in conjunction with the "Caribbean Festival Arts" exhibition that was on view until February in the International Gallery. "Smithsonian World," which launched its fifth season on public television this year, won national recognition this year when it received the prestigious Emmy Award for Outstanding Informational Series. "Invention," the Institution's first venture into cable television, was produced during the year for an October 1990 premiere. Produced by the Discovery Channel in cooperation with the Smithsonian, the series salutes human ingenuity and features the collections of the National Museum of American History.

Smithsonian Institution Press continued its tradition of excellence in scholarly and trade publishing through its University Press and Smithsonian Books. A new venture this year was children's book publishing, as the Press published *The Dream Is Alive*, based on the popular IMAX film shown at the National Air and Space Museum. *Smithsonian* and *Air & Space/Smithsonian* magazines continued to reach wide and enthusiastic readerships with articles on topics as multifaceted as the Institution itself. The Smithsonian News Service, which serves 1,000 daily and weekly newspapers nationwide with feature stories, signed an agreement with the New York Times Syndication Sales Corp. to distribute the news service overseas.

Smithsonian Research Expedition volunteers monitor Arenal Volcano in Costa Rica. (Photograph by Juliana Lacey)

Research

Scholarly research has been a hallmark of the Institution since its beginning, and it is becoming an even more critical element of the Smithsonian's public service. The wide-ranging research of Smithsonian staff, fellows, and visiting scholars contributes to an understanding of the natural world, diverse cultures, technology, and human creativity and provides important new insights that will help in addressing the challenges of the years ahead. Smithsonian researchers discover new galactic structures, study the interdependence of tropical insect and plant species, document the history of advertising in the United States, and explore the complex themes in an artist's prolific body of work.

Global environmental research continued to be the focal point of the Smithsonian's research efforts. At the Smithsonian Tropical Research Institute (STRI) in Panama, extensive studies continued on the nature and relationships of tropical organisms and their role in the biology of the planet. STRI's new Center for Paleoecol-

ogy, established this year, will contribute to scientists' understanding of the origins of man and changes in the natural world and their impact on the dynamics of global climatic change.

Scientists at the Smithsonian Environmental Research Center (SERC) in Edgewater, Maryland, are also providing insights into the nature of global climatic change through continuing long-term interdisciplinary studies of environmental problems. SERC studies address such questions as the "greenhouse effect" in tidal marshes and the interaction between the forest canopy and the atmosphere. Protecting the diversity of global ecosystems is also the concern of the Smithsonian Institution Man and the Biosphere Biological Diversity Program, which establishes collaborative efforts with developing countries to design and implement conservation training programs.

Under the auspices of the National Museum of Natural History, scientists conduct wide-ranging research in global change, human ecological history, biodiversity, Arctic studies, and other areas. The museum's Biodiversity Program expanded in 1990 in response to the accelerating destruction of tropical habitats. Museum scientists are at work in Bolivia, Peru, Ecuador, the Guianas, Brazil, and other parts of Amazonia. This year marked the inauguration of a multiyear archaeological study of sixteenth-century English explorer Martin Frobisher's base camp in the Canadian Arctic, the first English establishment on New World soil. Anthropological work continued at Olorgesaili in Kenya, where researchers hope to learn more about early human behavioral patterns by studying this site from the mid-Pleistocene era.

In its centennial year, the Smithsonian Astrophysical Observatory (SAO) continued its tradition as a leader in astronomy, astrophysics, and the space sciences. This year, two SAO astronomers identified the largest single coherent structure ever seen in nature, a "wall of galaxies" more than half a billion light-years long. SAO astronomers also obtained radar images of a small asteroid approaching the Earth, were selected as guest observers to use the Hubble Space Telescope, began the development of innovative telescopes for ground-based use, and engaged in numerous other research activities that carry on Samuel Pierpont Langley's vision for SAO when he founded it 100 years ago.

Insights into the history, science, and technology of aviation and spaceflight emerge from the work of scientists and historians at the National Air and Space Museum. Highlights of this year's research included the first measurement of absolute wind velocities above the cloudtops on Venus, which resulted in new findings that the direction of atmospheric circulation at that altitude is opposite to that of the planet's rotation. World War I aviation, the history of hypersonic flight, African Americans in aviation, and pioneering aircraft designer Igor Sikorsky were the topics of research by scholars in the museum's Department of Aeronautics.

The vital work of scientists at the National Zoological Park is dedicated to preserving endangered species whose existence is critical to global biodiversity. This year, the Zoo continued its pioneering research in cat reproduction, a program that has gained international recognition. A Sumatran tiger representing a valuable genetic lineage was brought to the Zoo from Indonesia for propagation and study under the Species Survival Plan, a cooperative effort of North American zoos. Work continued in artificial reproduction of cats with the first successful in vitro fertilization of tigers using methods developed with domestic cats. The painstaking process of breeding animals in captivity and then reintroducing them to the wild is another focus of Zoo research. This year, scientists made strides in the breeding and reintroduction of black-footed ferrets and Guam rails—both species that are extinct in the wild. Under the continuing Species Survival Plan program for golden lion tamarins, more than 80 zoo-born tamarins have been reintroduced since 1984.

Cultural diversity, as well as biological diversity, is an important scholarly concern of the Institution. Research related to the many human cultural systems that form the global community—past and present—is conducted under the auspices of a number of Smithsonian offices and bureaus.

Traditional ethnic, tribal, regional, minority, and working-class cultures in the United States and abroad are the focus of the Office of Folklife Programs, which this year began an exchange project with the Soviet Union. Soviet and U.S. scholars will study continuity and change in cultural traditions by conducting fieldwork among Soviet immigrant groups in this country and related groups in the Soviet Union.

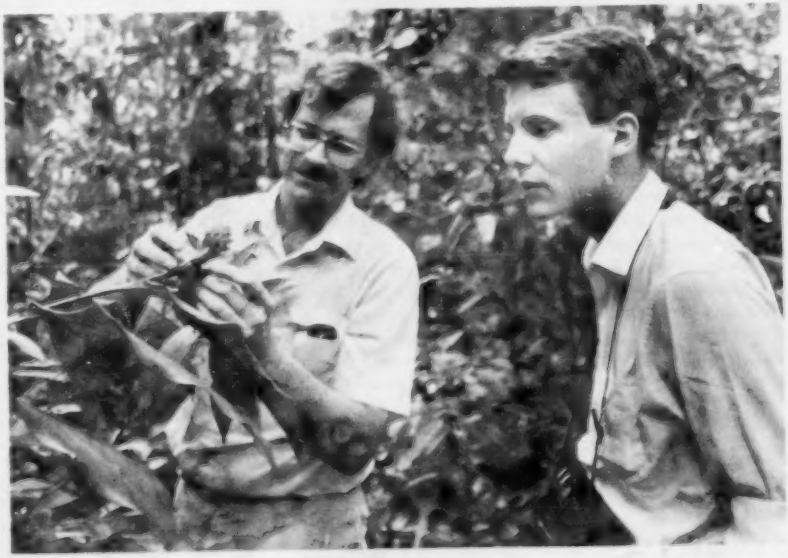
The twentieth century was the focus this year of the National Museum of American History's Department

of Social and Cultural History, which focused on expanding its research in contemporary American social and cultural history. Bernice Johnson Reagon, who received a prestigious MacArthur Foundation fellowship, has been using a case study approach to document the history of African American communities in Southwest Georgia and the Washington, D.C., area and to collect objects that help portray life in those communities. Her research techniques have led the museum to consider similar methods of collecting other culturally diverse twentieth-century material.

Research by Smithsonian scholars expands knowledge and understanding of visual arts traditions and techniques spanning many centuries. In the field of art history, research is sometimes dedicated to gaining a better understanding of objects in museum collections. Art historians and art conservators worked together on a multidisciplinary project conducted by the Freer Gallery of Art and the Arthur M. Sackler Gallery to compare objects in the two museums' collections of ancient Iranian metalwork with similar objects from institutions in North America, Japan, Great Britain, Europe, and the Soviet Union. Although the Freer is closed to visitors during its major renovation project, researchers still have access to the collections and library when possible.

Museum exhibitions also involve a strong research component, which provides a foundation for visitors' education and enjoyment. Extensive research was evident, for example, in the National Museum of American Art's comprehensive exhibition "Albert Pinkham Ryder." Little information exists about the eccentric nineteenth-century artist, so the exhibition's organizer and museum Director Elizabeth Broun had to uncover many additional resources to construct an overview of Ryder's career and cast new light on his materials, methods, and subject matter.

Invaluable research for the Ryder exhibition was conducted in the Archives of American Art, which this year began to focus efforts on improving access to its



Tropical Research Institute Assistant Director for Terrestrial Research Alan Smith shows Prince Joachim of Denmark how ants patrol wild ginger in the forest on STRI's Barro Colorado Island. (Photograph by Carl Hansen)

collections and services to researchers. The research portion of the Archives' automated data base is near completion, and next year the Archives catalogue will be available in libraries throughout the country as part of the Research Libraries Information Network.

Several Smithsonian-based projects are devoted to organizing, documenting, and publishing the papers of noted Americans. This year, the Joseph Henry Papers achieved a major goal: the development of an improved automated index to the papers of this respected scientist and first secretary of the Smithsonian. The Peale Family Papers project, administered by the National Portrait Gallery, continued work on volume 4 of the papers of this well-known family of artists. Volume 5, Charles Willson Peale's autobiography, is also in progress.

Each year, the rich resources of Smithsonian collections are fertile ground for research by hundreds of scholars and students in art, history, and science. The Institution's research support programs, administered by the Office of Fellowships and Grants, assist researchers from this country and abroad who want to use Smithsonian facilities in conjunction with staff members. In 1990, nearly 950 graduate and undergraduate students and scholars received awards from the Smithsonian. These short- and long-term appointments range from 10-week fellowships for students in the early stages of their graduate training to Regents Fellowships for distinguished scholars who are in residence at the Institution.

Institution-wide programs include the Smithsonian Fellowship Program, which marked its 25th anniversary this year. Postdoctoral, doctoral, and senior postdoctoral Smithsonian fellows conducted independent studies at the Institution on such topics as African American seamen in the Atlantic World from 1750 to 1885 and representation of domestic servants in nineteenth-century painting. The Faculty Fellowship Program supports research by minority faculty members, while undergraduate and graduate internships stimulate research by minorities in Smithsonian fields of interest. Nineteen Native American students and scholars received awards for the use of Native American collections at the Smithsonian.

Awards from Smithsonian bureaus included research fellowships at the National Air and Space Museum, the Renwick Gallery of the National Museum of American Art, and the Smithsonian Astrophysical Observatory. Conservation interns were in residence at five Smithsonian museums and the Conservation Analytical Laboratory.

Workshops and training programs offered by the Smithsonian brought museum professionals and scholars in related fields to the Institution this year. In "Building Partnerships: Museums and Their Communities," the first training congress sponsored by the Office of Museum Programs, 85 museum leaders from across the country assembled for discussions of the relationship between museums and their diverse constituencies. Fifty participants from the United States and France shared common concerns on issues of science and human rights at the international symposium "Les Droits de l'Homme and Scientific Progress," cosponsored by the Office of Interdisciplinary Studies and the National Academy of Sciences.

Members of the public, scholars, students, and others can gain informal access to Smithsonian resources with the assistance of staff in various offices. In the 14 branches of the Smithsonian Institution Libraries, staff answered 61,000 reference questions this year. The Visitor Information and Associates' Reception Center processed about 47,000 pieces of mail and responded to more than 337,000 calls for information about Smithsonian programs and events; more than 24,000 calls were received in April alone.

Collections

The 137 million objects and specimens that the Smithsonian holds in trust for the American public form a comprehensive record of human creativity, scientific and technological innovation, and the wonders of the natural world. As these collections are enriched each year by the acquisition of thousands of objects, they present an increasingly diverse picture of our cultural and natural heritage.

By far the high point of the year was the transfer to the Smithsonian of the collection of the Museum of the American Indian, Heye Foundation. This magnificent assemblage of more than 1 million artifacts—considered one of the finest Native American collections ever accumulated—will be the centerpiece of the National

Museum of the American Indian. In addition to artifacts, the collection includes a library, photo archives, and other resource materials.

The holdings of the Smithsonian's art museums grew with the addition of works of art spanning many centuries and representing many cultures and styles. The Hirshhorn Museum and Sculpture Garden added to its collection an important work by sculptor Henry Moore, *Stringed Figure No. 1* (1937), and major works by Edward Ruscha, *Five Past Eleven* (1989), and Richard Artschwager, *Two Indentations* (1967). The National Museum of American Art acquired three important American sculptures this year: Louis Jimenez's *Vaquero*, Elizabeth Catlett's *Singing Head*, and Ernest Tino Trova's *FM/5' AWF #3*. The museum also enriched its strong collection of African American art with paintings by Mailou Jones, Romare Bearden, Jacob Lawrence, and Frederick Brown. At the Renwick Gallery, works by such artists as Jere Osgood, Daniel Jackson, and Robert Arneson were added to the collection of contemporary crafts.

The Arthur M. Sackler Gallery acquired a number of examples of twentieth-century Asian art for its collection, along with a group of photographs by Raghubir Singh. To the collection of the Freer Gallery of Art were added a hanging calligraphy scroll by the Chinese Emperor Ch'ien-lung (reigned 1736–95), a silver rosewater bottle made in India around 1700, and two fine examples of nineteenth-century Indian gold jewelry.

Notable additions to the collection of the National Museum of African Art were a wood protective figure by the Teke peoples of the Republic of the Congo and a nineteenth-century throne of the Hehe peoples of Tanzania, carved in the form of a female torso.

Significant acquisitions by the National Portrait Gallery included a 1792 life portrait of Thomas Paine; a 1910 poster of the first black heavyweight champion, Jack Johnson; and an extremely rare Man Ray photograph (ca. 1922) of Gertrude Stein posing for the Jo Davidson portrait sculpture that is one of the best-known objects in the museum's collection.

The Archives of American Art acquired more than 121 collections this year, including the papers of ceramist and teacher Frans R. Wildenhain, sculptor Dimitri Hadzi, and painter and educator Edmund C. Tarbell, as well as a select group of Winslow Homer letters.

The National Air and Space Museum made two historic acquisitions: A Soviet SS-20 and an American Pershing II nuclear missile, both banned by the 1987 Intermediate Range Nuclear Forces (INF) Treaty between the United States and the Soviet Union, were placed on display together, symbolic of the effort to end the nuclear arms race. Other significant additions to the museum's collection were the Cliff Krainik ballooning collection of nineteenth- and twentieth-century photographs and memorabilia and an SR-71 reconnaissance aircraft, delivered to Washington-Dulles International Airport by the U.S. Air Force in a record-breaking 68-minute cross-country flight.

The extensive collections of the National Museum of American History grew larger and more diverse this year with the addition of thousands of objects. Artifacts and archival material in the Edward Orth World's Fair Collection give the museum one of the world's most comprehensive collections of materials on the 1939 New York World's Fair. Other acquisitions included Benny Goodman's clarinet, the first computer-driven piano, a "Funny Car" dragster, and the Eubanks Collection of photographs documenting the origin and evolution of the Black Panther Party.

Additions to the 120 million items in the collections of the National Museum of Natural History included a 396.30-carat kunzite necklace and a nearly flawless 120-pound specimen of Brazilian, transparent smoky citrine (yellow quartz), both gifts to the gem and mineral collection. The museum acquired a significant collection of neotropical mosquitos numbering 14,000 specimens, as well as the Horton Collection of Guatemalan-Mayan textiles, which contains fine examples of Guatemalan costumes.

The Smithsonian Institution Libraries enhanced its holdings with the Lewis and Valentine collection, which is noted for its books on Japanese gardens and practical horticultural topics. The Libraries' Special Collections added an important 1712 document to its extensive collection of Isaac Newton materials, and the Libraries purchased the Robert D. Mussey, Jr., collection on varnishes and furniture finishes, which will support the research and work of furniture conservators. The Smithsonian Institution Archives accessioned 700 cubic feet of records and other historical material, including Hornblower and Marshall drawings for the Natural History Building.

The care and management of the nation's collections

In one of the Smithsonian's cooperative programs in the Washington metropolitan area, Carmel Ervin, education specialist at the National Museum of Natural History, conducts an education workshop for science teachers. (Photograph by Eric Long)

is a complex and critical endeavor that goes on largely behind the scenes in Smithsonian museums and at the Museum Support Center in Suitland, Maryland. Cataloguing and recordkeeping, storage, preservation and conservation, and protection are all tasks that fall under the general rubric of collections care and management.

The Smithsonian's official overall collections management policy was updated and officially approved by Secretary McC. Adams in 1990. Developed under the auspices of the Office of the Registrar, the policy directs collecting units of the Institution to revise their individual collections policies and develop formal collecting plans.

One-third of the Smithsonian Institution Libraries' collections are at risk of disintegration, and this year the Libraries began an ambitious effort to rescue them. Under the Brittle Books Program, conservators will restore selected deteriorated materials or replace them with reprints, microfilm, or photocopies.

A special technical section of the National Museum of American Art's exhibition "Albert Pinkham Ryder," created in collaboration with the Conservation Analytical Laboratory (CAL), gave visitors a glimpse of the challenges of art conservation. A highlight of the year at CAL was the graduation of the first class in the Furniture Conservation Training Program.

The labor-intensive process of restoring historic aircraft and spacecraft takes place at the National Air and Space Museum's Paul E. Garber Preservation, Restoration, and Storage Facility. This year, work continued on engines that will enhance the interpretation of World War I in a new gallery scheduled to open in 1992 and on the *Enola Gay*, the aircraft that dropped the atomic bomb on Hiroshima. At the National Museum of American History, the Division of Conservation provided specialized laboratory treatment for 2,250 objects. Among them were George Washington's tent, which required 450 hours of painstaking cleaning, and the historic ENIAC computer, which needed 530 hours of work to prepare it for display in the "Information Age" exhibition.

Behind the scenes, a network of administrative offices supports the smooth operations of Smithsonian bureaus and offices. Among the varied services this central support system provides are security for the nation's collections, management of design and construction

projects in Smithsonian facilities, personnel administration, and oversight of the historic preservation of Smithsonian buildings.

This year, several administrative offices undertook activities designed to improve their service to bureaus and offices throughout the Institution. The Office of Design and Construction, which managed 40 construction projects this year, instituted a more efficient project management structure. The Office of Information Resource Management developed an information resource management plan and completed a five-year study in preparation for the creation of an integrated communications network. A comprehensive review of the Office of Personnel Administration also began this year.

Preparing to meet the challenges of the future requires physical changes to ensure that Smithsonian facilities serve the needs of the collections, the public, staff, and visiting scholars. The Smithsonian Tropical Research Institute (STRI) completed major additions to its physical facility during 1990, while the Freer Gallery of Art and the National Museum of American History continued building renovation projects. Plans were also under way for an extension of the National Air and Space Museum.

In March, STRI dedicated its new Earl Silas Tupper Research and Conference Center in Panama City, which houses offices and state-of-the-art laboratories. At STRI's Barro Colorado Island site, new housing, dining, and conference facilities also opened in March. Work progressed on the Freer Gallery of Art's four-year architectural renovation, which will result in much-needed new space for collections storage, conservation, and research; will link the Freer with its sister institution, the Arthur M. Sackler Gallery; and will improve exhibition space and visitor facilities. A team of paintings conservators began a painstaking two-year research and conservation project to restore James McNeill Whistler's Peacock Room, which is permanently installed in the Freer and considered the most important nineteenth-century interior in an American museum. In its 25th anniversary year, the National Museum of American History continued the section-by-section renovation of its building, which has been accomplished without closing the museum to the public. Plans progressed for the National Air and Space Museum extension, as the Board of Regents approved Washington-Dulles International Airport as the site for the new facility.

Staff Changes

This year, the Smithsonian sustained a number of changes in its top management. In July, Dean W. Anderson announced his resignation from the position of under secretary, where he had served for over five years; in September, he left the Smithsonian to join the staff of the Woodrow Wilson International Center for Scholars. Nancy D. Suttenfield, director of the Office of Planning and Budget, assumed the position of acting under secretary while a search for a permanent successor was conducted, and Mary J. Rodriguez was appointed the acting director of the Office of Planning and Budget. Just as the fiscal year drew to a close, Secretary Adams announced the appointment of Carmen E. Turner, then general manager of the Washington Metropolitan Area Transit Authority, as the next under secretary.

Ralph Rinzler, who had served as the assistant secretary for public service since 1983, retired from that position to become an adviser to the secretary in early February. James C. Early, who had been deputy assistant secretary, served for the remainder of the year as the acting assistant secretary for public service. And Wilton S. Dillon, formerly director of the Office of Interdisciplinary Studies, assumed the new position of senior scholar in residence.

In the last year, several new outstanding staff were appointed to senior management positions. These included W. Richard West, Jr., as the director of the National Museum of the American Indian; Richard J. Wattenmaker as the director of the Archives of American Art; Thomas D. Blair as the inspector general; Marilyn S. Marton as director of the newly configured Office of Human Resources; Claudine K. Brown as interim director of the African American International Study; Marshall J. Wong as director of the Smithsonian Office of Wider Audience Development; and Robert P. Dillman as the director of the Office of Design and Construction.

Report of the Board of Regents

At their meeting on January 29, 1990, the Board of Regents voted to accept from the Museum of the American Indian, Heye Foundation, its collection of books, objects, works of art, endowment, and certain properties for the purpose of establishing the National Museum of the American Indian as authorized by Public Law 101-185. The regents' acceptance was conditioned upon the receipt of New York court rulings consistent with the May 8, 1989, memorandum of understanding between the Smithsonian and the Heye Foundation. At the same time, the regents appointed members of the first Board of Trustees of the National Museum of the American Indian. They included Ernest Leroy Boyer, W. Roger Buffalohead, Barber B. Conable, Jr., Vine Deloria, Jr., Suzan Shown Harjo, Norbert Hill, Frederick E. Hoxie, Daniel K. Inouye, Jennie Joe, Alvin Josephy, Julie Johnson Kidd, Clara Sue Kidwell, Navarre Scott Momaday, Curt Muser, Waldemar A. Nielson, Alfonso Ortiz, Janine Pease-Windy Boy, David Rockefeller, Helen M. Scheirbeck, David Hurst Thomas, Arturo Warman, Thomas R. White, Rosita Worl, and ex officio, the secretary and one assistant secretary.

The regents considered "best and final" offers from the governors of Virginia and Maryland, as well as a generous proposal from the City of Denver, and reaffirmed their preference for Washington-Dulles International Airport as the site for the proposed extension of the National Air and Space Museum. The board encouraged the secretary to undertake further studies and planning to ensure a viable legislative proposal for congressional authorization of the project.

Among other actions, the regents discussed matters of organization and management, approved the publication of the *Five-Year Prospectus, 1991–1995*; accepted in principle a proposed four-year fund-raising effort and established an ad hoc Advisory Committee on Planning and Development; incorporated into the endowment funds certain restricted, quasi-unrestricted, and other unrestricted funds; nominated Anne L. Armstrong to serve an additional term as regent; appointed Thomas M. Keresey to the Investment Policy Committee; awarded the Henry Medal to August Heckscher; adopted a policy statement on senior-level compensation and authorized the secretary to implement adjustments to trust fund salaries in January 1991; and approved the planned renovation of the National Museum of Natural History/National Museum of Man and construction of additional space in the museum's East Court. The regents also appointed or reappointed John A. Friede, James L. Hudson, Frieda Rosenthal, Brian C. Leyden, and Michael L. Lomax to the Commission of the National Museum of African Art; Frank Stanton to the Commission of the National Portrait Gallery; and Margaret Dodge Garrett, Wilbur L. Ross, Jr., Edwin I. Colodny, Rita R. Fraad, and Richard J. Schwartz to the Commission of the National Museum of American Art.

In a variety of committee reports, it was indicated that the Audit and Review Committee had examined corrective measures taken to stem inventory losses and enhance cash management in the museum shops, discussed the inspector general's first semiannual report, and reviewed the complexities of renovating the Natural History Building. Reports also revealed that the Personnel Committee found no evidence of conflict of interest in managements' statements of personal financial interests and that the Investment Policy Committee amended its investment guidelines. In his report, the secretary described the conditions under which the Smithsonian Tropical Research Institute had been operating amidst strife in Panama, the status of *Air & Space/Smithsonian* magazine, and the prospect of charging for admission to an unusual exhibition of lifelike mechanical dinosaurs at the Natural History Museum. The Financial Report detailed the status of the Institution's funds, noting particularly the effects of Gramm-Rudman-Hollings sequestration and other budget cuts. Additional status reports were given on affirmative action, the African American Institutional Study, construction and renovation, litigation, refinements to planning and budget processes, media developments, and the activities of the Smithsonian Council.

The traditional regents' dinner had been held on the preceding evening, January 28, in the Arts and Industries Building in honor of the prospective members of the Board of Trustees of the National Museum of the American Indian. Speakers included the chancellor, the secretary, Julie Kidd (chair of the Heye Foundation Board of Trustees), and Alan Parker, who spoke on behalf of Senator Inouye.

The regents' second meeting of the year took place on May 7, 1990. At this meeting the regents requested their congressional members to introduce and support legislation authorizing the board to plan and design an

extension of the National Air and Space Museum at Dulles Airport. The regents nominated I. Michael Heyman to the board, effective upon the expiration of the term of A. Leon Higginbotham, Jr., in October 1990. The regents also discussed a report on equal employment opportunity over the last five years; they noted that the report reflected more progress and effort than is generally recognized and urged management's continued vigilance and effort toward expanded opportunities for minorities.

Among other actions, the regents amended their bylaws to assist in handling essentially routine administrative responsibilities under secretarial authority, agreed on a total return payout rate for fiscal year 1991, approved adjustments to the budgets of appropriated and nonappropriated trust funds to enable management to achieve balanced budgets by year's end, incorporated two quasi-unrestricted funds into the endowment, accepted a plan for preparing for an endowment campaign with the assistance of unrestricted trust funds, accepted the annual report for fiscal 1989, and approved changes to the bylaws of the Advisory Council of the Cooper-Hewitt Museum and reappointed Donald Bruckmann, Marietta Tree, Karen Johnson Boyd, Joan K. Davidson, Joanne Du Pont, Harmon Goldstone, August Heckscher, Kenneth Miller, Arthur Ross, and Robert Sarnoff to membership thereon.

In its report, the Investment Policy Committee noted its endorsement of an endowment goal of $500 million by 1995. The Audit and Review Committee noted that Coopers & Lybrand had given the Institution's financial statements for fiscal 1989 a clean opinion and had recommended that steps be taken to increase central controls as the Institution implements increasingly decentralized entrepreneurial and development activities. The Audit and Review Committee also noted that the inspector general had reported on weaknesses in the accessibility program for the handicapped, in selected areas of collections management, and in certain aspects of construction and safety management.

In his report, the secretary noted progress toward a management study, the potential sale of real estate, and the controversy surrounding the Smithsonian's consideration of locating the submillimeter telescope array atop Mount Graham in Arizona. The secretary also reported on activities leading toward a smooth transition of the Museum of the American Indian, Heye Foundation, to the National Museum of the American Indian; he noted, too, the preliminary work on fund-raising for the new museum and the trustees' consideration of space within the Custom House in New York City. Additional reports were given on the African American Institutional Study, the need for administrative and programmatic space in proximity to the National Mall, recent limitations to museum security and public accessibility, major recruitments, construction and renovation, the recommendations of the secretary's Planning Advisory Group, litigation, and Smithsonian interest in a potential research site in Kenya.

The traditional regents' dinner was held on the preceding evening, May 6, in the National Museum of American History, where the regents and their guests attended the opening reception for the "Information Age" exhibition. The speakers included David Acheson, Secretary Adams, and Roger Kennedy.

The third and final meeting of the year was held on September 17, 1990. At this meeting the secretary discussed with the regents his plan to appoint Mrs. Carmen Turner as under secretary in place of Dean Anderson, who had resigned over the summer. The secretary also alluded to other potential changes in the top management of the Institution.

In a wide variety of actions, the regents conferred upon A. Leon Higginbotham, Jr., the title of regent emeritus upon the expiration of his term of service on the board; approved budgets for fiscal 1991 and the federal budget request for fiscal year 1992; accepted into the endowment restricted funds provided from the Museum of the American Indian, Heye Foundation; authorized the secretary to implement new pay systems for the senior federal and trust staff, approved funding for the support of a fund-raising campaign for the National Museum of the American Indian; encouraged the secretary to explore private sector funding for the extension of the National Air and Space Museum; and authorized the secretary to negotiate most favorable terms for the lease or lease/purchase of an administrative service center. The regents also authorized the secretary to arrange for the sale of excess property at the Smithsonian Environmental Research Center, awarded the Henry Medal to Eloise Spaeth, and approved the naming of a gallery in the National Museum of Natural History in honor of Harry Winston.

The Audit and Review Committee reported that

work on the implementation of the new general ledger system has been progressing, but complexities have made progress slower and more difficult than desired. The committee also noted that changes in audit findings and follow-up procedures will give selective emphasis to the most significant issues. The Investment Policy Committee reported on the status of the endowment and noted that its composition falls within the committee's guidelines.

The regents appointed Juanita P. Baranco, Paul R. Ehrlich, Henry Loomis, Robert H. Malott, Jeffery W. Meyer, Homer A. Neal, David R. Pilbeam, S. Dillon Ripley, II, Nicholas M. Salgo, James W. Valentine, Warren Herbert Wagner, Jr., David B. Wake, Milton H. Ward, Ronald H. Winston, and E-An Zen to the National Council of the National Museum of Natural History/National Museum of Man. They also appointed Frederick Brown to the Commission of the National Museum of American Art.

Among other actions, the regents gave preliminary consideration to the draft *Five-Year Prospectus, 1992–1996*, and discussed the redirection of earlier fund-raising goals toward those that will bring relief to current budget strains or respond to a statutory mandate. The board also received reports on the African American Institutional Study, equal opportunity advances over a six-month period, and Quincentenary programs, as well as a host of status of reports on various Smithsonian activities.

A reception for the regents and their guests was held at the home of Vice President and Mrs. Danforth Quayle on the evening of September 16. It was followed by a dinner in the Milestones of Flight gallery of the National Air and Space Museum. Introduced by the chancellor, Secretary Adams touched briefly on the importance of the Institution's partnership with corporate America. He also recognized two special guests, Regent Emeritus Lindy Boggs and Senator James McClure, whose dedication to and support of the Smithsonian will be sorely missed on Capitol Hill upon their retirement from the Congress.

Benefactors

The Smithsonian gratefully acknowledges the support of the individuals, foundations, and corporations whose gifts, bequests, and contributing memberships aided the work of the Institution during the past fiscal year, October 1, 1989, through September 30, 1990.

The Smithsonian owes its founding to the generosity of one individual. During most of its history since 1846, the Institution has relied on a combination of both federal and private funding to carry out the terms of James Smithson's will. As a trust instrumentality of the United States, the Smithsonian has received federal appropriations to support its basic operations and selected initiatives.

The trust funds play a vital role in providing the Institution with the flexibility and independence essential to its creative growth. The national and international reputation for excellence held by the Smithsonian is in large part a result of the innovative, imaginative, and special activities underwritten by public-spirited private citizens. Of particular importance are gifts that have supported the Smithsonian's core functions—exhibitions, collections acquisition, research, and public education—that are central to its achievements.

Certain donors have requested anonymity. If the name of any other donor has been omitted, it is unintentional and in no way lessens the Smithsonian's appreciation.

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Financial Report

Ann R. Leven, Treasurer

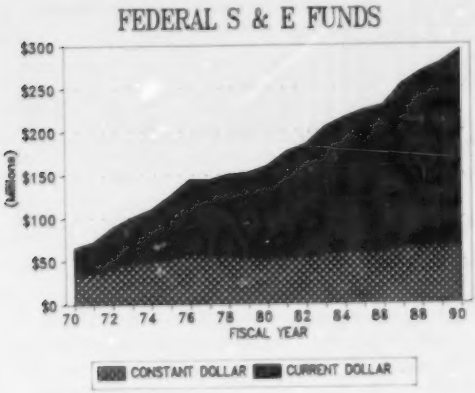
The Smithsonian concluded 1990 under the threat of sequestration to meet Gramm-Rudman targets, an action that would have necessitated the furloughing of both federal and trust personnel and related cutbacks in service to the public. A slowing economy compounded by international concerns and continuing unfavorable publicity about Washington, D.C., as a tourist center dampened private-side revenues; these factors are likely to have a protracted effect.

Amidst all the doom and gloom, the year ended on a bright note as the regents accepted into the endowment at their September 17 meeting certain restricted funds for the National Museum of the American Indian. Thus, the Institution's financial statements for 1990 for the first time fully reflect the incorporation into the Smithsonian of this significant addition.

Operations

Federal appropriations provided $225,479,000 to fund ongoing operations, almost a 7 percent increase over fiscal 1989. New support was included for initial operating costs of the National Museum of the American Indian, a variety of cultural diversity programs, including the Columbus Quincentenary, and global change research projects.

Government agencies provided project grants and



contracts to fund research at the Smithsonian Astrophysical Observatory, the National Museum of Natural History/National Museum of Man, and the Smithsonian Tropical Research Institute. Funded projects included a study of the ecological effects of an oil spill, research into the condition of the upper atmosphere, investigation of the geologic and tectonic activity of the southwest, and a series of conservation workshops.

Nonappropriated income from gifts, grants, endowments, current investments, and revenue-producing activities supplemented federal funds. Unrestricted trust funds were allocated to base support and Institution-wide priorities. Allocations were made, as in the past, to fund internal award programs for acquisitions, special exhibitions, fellowships, scholarly studies, and educational outreach.

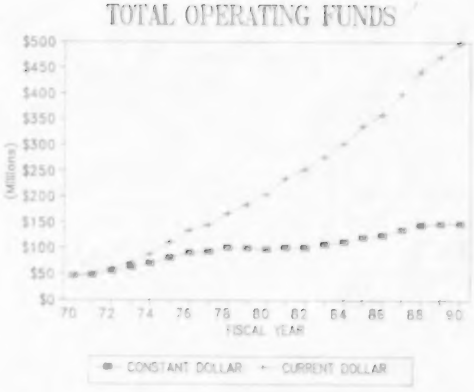
In addition, $3 million in revenue generated from auxiliary enterprises was transferred to endowment following past practice to strengthen this important asset. The 1990 operating surplus was added to the unrestricted trust fund balance, which serves as working capital.

The Smithsonian is especially grateful to its many friends in the private sector, whose generosity contributed vitally to its work. Individuals, foundations, and corporations are listed in the "Benefactors" section of this annual report. Private funding helped support such activities as the Minimum Critical Size Ecosystem Project, the traveling exhibition "Moscow Treasures," international conservation training, and the Philadelphia Arts Documentation Project.

Source of Funds	Gross Revenue ($1,000s)	Net Income ($1,000s)	Net Income (%)
Federal Appropriation	225,479	225,479	69
Government Grants and Contracts	29,089	29,089	9
All Trust Sources	243,570	70,205	22
Total Available for Operations	498,138	324,773	100

Financial Management Activities

The ongoing effort to improve the automated financial systems of the Treasurer's Office progressed in a timely fashion. General ledger and funds control software were installed on the Institution's mainframe computer. The system will go "live" after a period of parallel testing early in the new fiscal year. Further refinements and upgrades to the labor accounting system and the personnel cost projection system have already been made.



The Office of Sponsored Projects expanded its data base, with resulting efficiencies in seeking and administering external funds. Similarly, the Office of Risk Management made significant strides in the Institution's computerized disaster preparedness system.

The treasurer oversees four revenue-producing activities through the Business Management Office: Museum Shops, Mail Order, Product Development and Licensing, and Concessions. Here, too, substantive effort was expended on improving support systems, most notably in the Museum Shops and in Mail Order. Although visitation on the National Mall was down for the second straight year, posing significant challenges to sales growth, these activities contributed more to operations in 1990 than in 1989.

Endowment

The Smithsonian endowment fund reached an all-time high of $283.2 million during July of the fiscal year.

However, the Mideast crisis combined with the federal budget deliberations drove the securities markets down thereafter. By September 30, 1990, the market value of the fund had dropped to $254.5 million, down 9 percent for the year. The Smithsonian was not as adversely hurt as it might have been. Over the course of the year, the investment guidelines had been modified to increase the minimum requirement for investments in nonequity issues. At year end, the Institution had 30 percent of its portfolio in bonds, 14 percent in cash and cash equivalents, and 56 percent in equities.

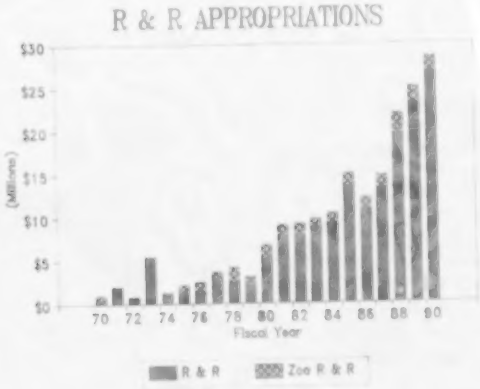
The Institution continues to utilize its two balanced managers: Fiduciary Trust Company of New York, and Miller, Anderson and Sherrerd. During the year, $10 million was invested with Wellington Management Company in over-the-counter stocks. Following the close of the fiscal year, the Smithsonian's Investment Policy Committee redeployed $45 million previously handled by an equity manager. In a separate move, two minority investment managers were hired: Calvert-Ariel and the Minority Equity Trust Company.

Regent Barnabas McHenry chairs the Investment Policy Committee of the Board of Regents. During the year, Thomas J. Watson, Jr., resigned from the committee after more than 10 years of dedicated and insightful service, for which the Institution is most grateful. Replacing Mr. Watson is Thomas J. Keresey, chairman, Palm Beach Capital Management, and a member of the National Board of the Smithsonian Institution. The Institution remains indebted to Donald Moriarty, Charles H. Mott, Jane Mack Gould, John W. English, and Regent Norman Mineta for their continuing service.

Construction and Plant Funds

In addition to its appropriation for salaries and other operating expenses, the Institution receives federal support for the repair and restoration of its facilities. In fiscal 1990, $26,468,000 was appropriated for work on fire detection and suppression systems, utilities, facade restoration and replacement, and routine repairs. Appropriations for other construction activities included $4,040,000 for major alterations and modifications, as well as $730,000 for construction planning.

Also, $1,930,000 was provided for new Smithsonian Tropical Research Institute research facilities;



$1,620,000 was provided for the planned Museum of the American Indian. A separate appropriation of $6,423,000 allowed the National Zoological Park to continue a repair program and other projects in its master construction plan.

Audit Activities

The Institution's funds, federal and nonappropriated, are audited annually by an independent public accounting firm, currently Coopers & Lybrand. Coopers & Lybrand's unqualified report for fiscal 1990 is reprinted on the following pages. During the year, consultants from Coopers & Lybrand completed an analysis of the Institution's overhead system, in addition to the annual audit, and provided support for the financial systems improvement project.

The Smithsonian's internal audit staff, part of the Office of the Inspector General, regularly reviews the Institution's financial activities and fiscal systems, assists the outside auditors, and undertakes special projects, as required. Mr. Thomas D. Blair joined that office as the Institution's first Inspector General in June 1990. He comes to the Institution after a distinguished career, most recently as Regional Manager of the Office of the Inspector General of the Veterans Administration.

The Defense Contract Audit Agency audits grants and contracts received from federal agencies and monitors allocated administrative costs.

The Audit and Review Committee of the Board of Regents, chaired by Regent David C. Acheson, met three times during the fiscal year pursuant to its fiduciary responsibilities under legislation pertinent to the Institution and the bylaws of the Board of Regents. The committee reviewed the 1989 audit performed by Coopers & Lybrand and the 1990 audit plan. It also received reports from the Office of the Inspector General on a wide variety of institutional programs and procedures. Other items on the committee's agenda included auxiliary internal controls and the implementation of the new financial systems.

Related Organizations

The National Gallery of Art, the John F. Kennedy Center for the Performing Arts, and the Woodrow Wilson International Center for Scholars were established by Congress within the Institution. Each organization is administered by its own board of trustees and reports independently on its financial status. The Smithsonian provides the Woodrow Wilson International Center for Scholars with certain fiscal, administrative, and support services plus office space on a reimbursement basis.

Administrative services are provided by the Institution on a contract basis for Reading is Fundamental. The Friends of the National Zoo, an independent nonprofit organization, operates under a concessions contract; proceeds from Friends activities accrue to the Zoo.

Postscript

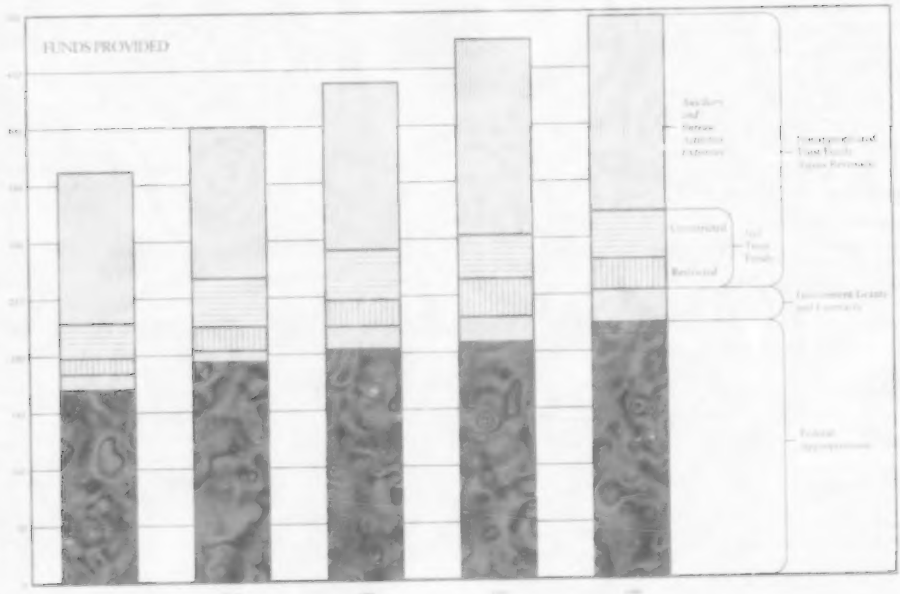
On October 1, 1990, Ann R. Leven tendered her resignation as Treasurer of the Institution to accept a newly created position at the National Gallery of Art. Ms. Leven's six years at the Institution were ones of significant accomplishment, most notably the strengthening of the Institution's trust fund base. Adequate working capital and reserves are now in place. Museum shops, Mail Order, Product Development and Licensing, and concession revenues have grown dramatically since she arrived in 1984. The endowment nearly doubled with solid investment performance and careful monitoring.

The new restaurant facility at the National Air and Space Museum stands as a tribute to Ms. Leven's financial creativity and tenacity, as do considerable improvements to the Institution's financial systems, both in place and planned. In a departing statement, Ms. Leven said, "I applaud the Treasurer's Office staff. Their loyalty and dedication has made an impossible job possible. We have learned from each other and seen the fruits of our joint accomplishments."

Smithsonian Institution Operating Funds

FISCAL YEARS 1986, 1987, 1988, 1989, 1990

(In $1,000,000s)



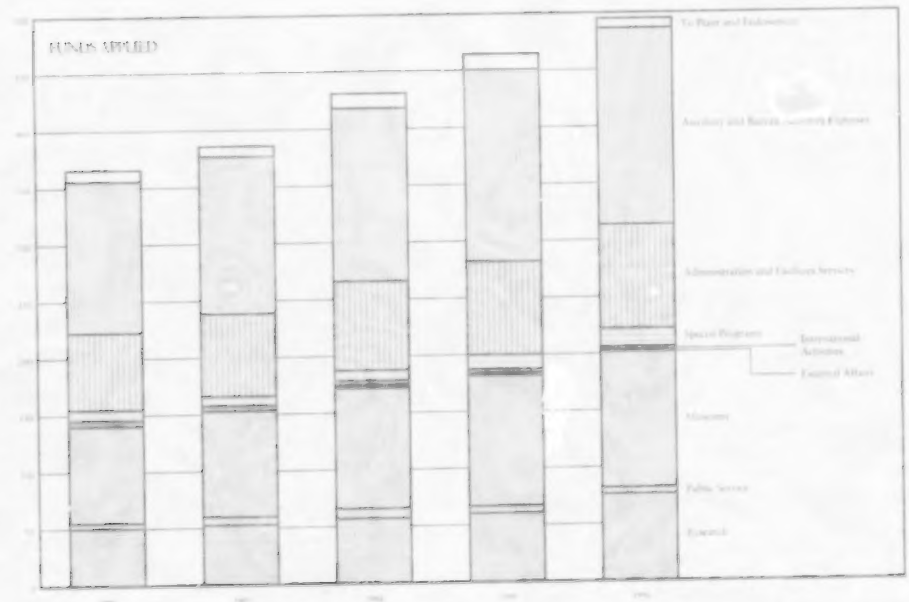


Table 1. Financial Summary (in $1,000s)

	FY 1989	FY 1990
INSTITUTIONAL OPERATING FUNDS		
FUNDS PROVIDED:		
Federal Appropriations–Salaries & Expenses	$ 211,240	$ 225,479
Government Grants & Contracts	20,977	29,089
Nonappropriated Trust Funds:		
For Restricted Purposes	30,412	27,672
For Unrestricted & Special Purposes:		
Auxiliary & Bureau Activities Revenues–Gross	195,786	201,347
Less Related Expenses	(169,142)	(173,365)
Auxiliary & Bureau Activities Net Revenue	26,644	27,982
Investment, Gift, & Other Income	13,771	14,551
Total Net Unrestricted & Special Purpose Revenue	40,415	42,533
Total Nonappropriated Trust Funds–Gross	239,969	243,570
–Net	70,827	70,205
Total Operating Funds Provided–Gross	472,186	498,138
–Net	303,044	324,773
FUNDS APPLIED:		
Research	67,419	79,641
Less SAO Overhead Recovery	(3,807)	(4,429)
Museums	111,020	121,454
Public Service	7,104	6,189
Institutional Initiatives	—	376
External Affairs	2,347	2,974
International Activities	2,094	1,874
Special Programs	12,748	15,456
Associates & Business Management	525	443
Administration–Federal (see Note 1)	17,497	19,690
Nonappropriated Trust Funds	12,444	14,656
Less Smithsonian Overhead Recovery	(10,825)	(11,945)
Facilities Services	63,228	67,003
Total Operating Funds Applied	281,794	313,379
Transfers (Nonappropriated Trust Funds)		
Unrestricted Funds–To Plant	—	(5)
–To Endowment	6,189	5,512
Restricted Funds–To Endowment	6,641	2,164
Total Operating Funds Applied & Transferred Out	294,624	321,050
CHANGES IN FUND BALANCES:		
Nonappropriated Trust–Restricted Purpose	4,371	4,028
Unrestricted–General Purpose	4,265	468
–Special Purpose	(586)	1,504
Appropriated (see Note 2)	370	(2,277)
Total	$ 8,420	$ 3,723
YEAR-END BALANCES–NONAPPROPRIATED TRUST FUNDS:		
Restricted Purpose	$ 20,948	$ 24,975
Unrestricted–General Purpose	13,300	13,769
–Special Purpose	33,808	35,312
Total	$ 68,056	$ 74,056
OTHER FEDERAL APPROPRIATIONS (see Note 3)		
Canal Zone Biological Area Fund	$ 101	$ 137
Construction	34,695	41,211
Total Federal Appropriation (Including S & E above)	$ 246,036	$ 266,827

Note 1: Includes unobligated funds returned to Treasury: FY 1989–589 thousand; FY 1990–589 thousand.
Note 2: The fund balance represents multiple-year funding for instrumentation, and includes an obligation that will be covered by a future year's appropriation.
Note 3: Excludes $1,992 thousand received in FY 1989 and $2,001 thousand received in FY 1990 from the Department of State for research projects in India.

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1990
(Excludes Canal Zone Biological Area Fund, Plant Funds, and Endowments) (in $1,000s)

			Nonappropriated Trust Funds				
			Unrestricted			Restricted	
	Federal Funds	Total Non-Appropriated Funds	General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
FUND BALANCES–Beginning of Year	$ 370	$ 68,056	$13,301	$ —	$33,808	$20,947	$ —
FUNDS PROVIDED:							
Federal Appropriations	225,479	—	—	—	—	—	—
Investment Income	—	17,870	7,840	—	1,483	8,547	—
Government Grants and Contracts	—	29,089	—	—	—	—	29,089
Gifts	—	21,615	206	7,285	710	13,414	—
Sales and Membership Revenue	—	194,062	—	185,048	9,014	—	—
Other	—	10,023	1,187	—	3,125	5,711	—
Total Provided	225,479	272,659	9,233	192,333	14,332	27,672	29,089
Total Available	225,849	340,715	22,534	192,333	48,140	48,619	29,089
FUNDS APPLIED:							
Research:							
Assistant Secretary	1,046	824	328	—	38	186	272
Astrophysical Observatory	12,313	31,651	4,420	—	2,392	130	24,709
Less Overhead Recovery	—	(4,429)	(4,429)	—	—	—	—
Tropical Research Institute	5,871	2,628	413	—	899	129	1,187
Environmental Research Center	1,912	912	96	—	289	56	471
National Zoological Park	14,373	1,933	140	—	751	470	572
Smithsonian Archives	611	225	215	—	10	—	—
Smithsonian Libraries	5,547	721	536	—	172	13	—
Total Research	41,673	34,465	1,719	—	4,551	984	27,211
Museums:							
Assistant Secretary	806	772	418	—	241	99	14
Museum Programs	499	106	21	—	71	14	—
National Museum of Natural History/ Museum of Man	27,475	7,002	408	—	2,988	2,716	890
National Air & Space Museum	10,100	6,618	307	—	4,764	1,159	388
National Museum of American History	15,160	6,423	146	—	2,015	4,262	—
National Museum of American Art	5,089	2,840	209	—	1,877	754	—
National Portrait Gallery	4,653	520	36	—	272	200	12
Hirshhorn Museum and Sculpture Garden	3,442	3,904	66	—	1,190	2,648	—
Center for Asian Art	4,280	4,179	93	—	419	3,667	—
Archives of American Art	1,012	1,334	96	—	33	1,205	—
Cooper-Hewitt Museum	1,511	3,132	913	—	1,520	689	10
National Museum of African Art	3,473	452	44	—	385	23	—
Anacostia Neighborhood Museum	960	76	43	—	32	1	—
National Museum Act	2,530	—	—	—	—	—	—
Conservation Analytical Laboratory	1,908	105	—	—	87	18	—
Office of Exhibits Central	790	24	—	—	24	—	—
Traveling Exhibition Service	2,841	2,810	329	—	1,892	575	14
Total Museums	86,529	40,297	3,129	—	17,810	18,030	1,328
Public Service:							
Assistant Secretary	263	647	540	—	92	13	2
Telecommunications	316	579	594	—	(117)	93	9
Visitor Information and Associates' Reception Center	150	1,192	1,136	—	49	7	—
Office of Public Affairs	688	803	781	—	22	—	—
Smithsonian Press	1,238	18,607	—	18,403	49	155	—
Total Public Service	2,655	21,828	3,051	18,403	95	268	11
Institutional Initiatives:	—	376	362	—	—	14	—

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1990
(Excludes Canal Zone Biological Area Fund, Plant Funds, and Endowments) (in $1,000s) (*continued*)

			Nonappropriated Trust Funds				
			Unrestricted			Restricted	
	Federal Funds	Total Non-Appropriated Funds	General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
External Affairs:							
Assistant Secretary	35	705	530	—	8	161	6
Development Office	—	1,981	1,893	—	42	46	—
Office of Special Events	64	189	189	—	—	—	—
Media Activities	—	11	—	11	—	—	—
Total External Affairs	99	2,886	2,612	11	50	207	6
International Activities	853	1,018	598	—	247	66	107
Special Programs:							
American Studies & Folklife Program	1,118	1,890	851	—	424	202	413
International Environmental Science Program	765	—	—	—	—	—	—
Academic & Educational Program	1,218	3,269	585	—	2,483	199	2
Museum Support Center (see Note 3)	7,271	—	—	—	—	—	—
Total Special Programs	10,372	5,159	1,436	—	2,907	401	415
Associate Programs	—	97,878	288	97,423	77	90	—
Business Management	—	49,728	—	49,728	—	—	—
Administration	19,601	15,911	11,984	—	2,793	1,123	11
Less Overhead Recovery	—	(11,945)	(11,945)	—	—	—	—
Facilities Services	65,885	1,387	1,189	—	197	1	—
Transfers Out/(In):							
Treasury (see Note 1)	89	—	—	—	—	—	—
Programs (see Note 2)	—	—	6,358	—	(6,358)	—	—
Net Auxiliary Activities	—	—	(25,147)	25,147	—	—	—
Other Designated Purposes	—	—	8,390	1,621	(10,307)	296	—
Plant	—	(5)	—	—	(5)	—	—
Endowment	—	7,676	4,741	—	771	2,164	—
Total Transfers (see Note 1)	89	7,671	(5,658)	26,768	(15,899)	2,460	—
Total Funds Applied	227,756	266,659	8,765	192,333	12,828	23,644	29,089
FUND BALANCES--End of Year (see Notes 3 & 4)	$ (1,907)	$ 74,056	$13,769	$ 0	$35,312	$24,975	$ 0

Note 1: For Federal funds represents unobligated funds returned to Treasury.
Note 2: Includes Collection Acquisition, Scholarly Studies, Educational Outreach, and Special Exhibitions Programs.
Note 3: Funds applied to Museum Support Center includes an obligation of $3,023 thousand that will be covered by future year appropriations.
Note 4: The fund balance for federal funds represents $1,116 thousand in multiple-year funding for instrumentation, and the MSC obligation of $(3,023) thousand to be covered by future year appropriations.

Table 3. Government Grants and Contracts–Expenditures
(in $1,000s) Fiscal Years 1989 and 1990

Government Agencies	FY 1989	FY 1990
Department of Defense	$ 966	$ 1,292
Department of Energy	465	364
Department of Health and Human Services	461	645
Department of Interior	1,130	1,426
National Aeronautics and Space Administration (see Note 1)	15,992	23,660
National Science Foundation (see Note 2)	834	790
Other	1,129	911
Total	$20,977	$29,088

Note 1: Includes $712 thousand (FY 1989) and $760 thousand (FY 1990) in subcontracts from other organizations receiving prime contract funding from NASA.
Note 2: Includes $187 thousand (FY 1989) in NSF subcontracts from the Chesapeake Research Consortium.

Table 4. Auxiliary Activities, Fiscal Years 1989 and 1990 (in $1,000s)

	Sales and Membership Revenue	Gifts	Less Cost of Sales	Gross Revenue	Expenses	Net Revenue (Loss)
FY 1989	$181,720	$5,391	$ 99,965	$87,146	$61,946	$25,200
FY 1990:						
Associates Programs	$107,051	$7,284	$ 71,379	$42,956	$26,044	$16,912
Business Management: (see Note 1)						
—Museum Shops/Mail Order	52,803	—	22,918	29,885	23,081	6,804
—Concessions	3,343	—	—	3,343	2,792	551
—Other	960	—	—	960	937	23
Smithsonian Press	20,792	—	5,773	15,019	12,630	2,389
Media Activities	100	—	—	100	11	89
Total FY 1990	$185,049	$7,284	$100,070	$92,263	$65,495	$26,768

Note 1: Before revenue-sharing transfers to participating Smithsonian bureaus of $1,460 thousand (FY 1989) and $1,621 thousand (FY 1990).

Table 5. Endowment and Similar Funds, September 30, 1990 (in $1,000s)

	Book Value	Market Value
ASSETS:		
Pooled Consolidated Endowment Funds:		
Cash and Equivalents	$ 3,715	$ 3,715
Mutual Funds	43,839	41,267
Interfund Receivable	2,568	2,568
U.S. Government and Government Obligations	52,678	52,537
Bonds	24,840	24,442
Convertible Bonds	1,695	1,663
Stocks	122,802	128,176
Receivable for Securities Sold	1,721	1,721
Total Pooled Fund	253,858	256,089
Nonpooled Endowment Funds:		
Loan to U.S. Treasury in Perpetuity	1,137	1,159
Receivables	28	28
Investments in Charitable Trusts	595	701
Total Nonpooled Funds	1,760	1,888
Total Assets	$255,618	$257,977
LIABILITIES AND FUND BALANCES:		
LIABILITIES:		
Payables for Securities Purchased	$ 2,760	$ 2,760
Deferred Revenue—Charitable Trusts	595	701
Total Liabilities	3,355	3,461
FUND BALANCE:		
Unrestricted Purpose: True Endowment	6,940	7,668
Quasi Endowment	111,590	109,455
Total Unrestricted Purpose	118,530	117,123
Restricted Purpose: True Endowment	89,222	92,558
Quasi Endowment	44,511	44,835
Total Restricted Purpose	133,733	137,393
Total Fund Balances	252,263	254,516
Total Liabilities and Fund Balances	$255,618	$257,977

Table 5A. Market Values of Endowment and Similar Funds (in $1,000s)

Fund	9/30/86	9/30/87	9/30/88	9/30/89	9/30/90
Unrestricted	$ 83,209	$108,925	$101,432	$127,394	$117,123
Freer	39,570	50,380	44,228	53,731	47,963
Other Restricted	58,382	74,816	75,169	98,540	89,430
Total	$181,161	$234,121	$220,829	$279,665	$254,516

Table 6. Changes in Pooled Consolidated Endowment-Fund Balances at Market (in $1,000s)

		Restricted		
	Unrestricted	Freer	Other	Total
Market Value–10/1/89	$126,120	$53,731	$96,762	$276,613
Changes:				
Gifts	0	0	1,774	1,774
Transfers of Excess Yield (Net of Below)				
Interest and Dividends (see Note 1)	5,648	2,397	4,401	12,446
Income Paid Out	(3,715)	(1,557)	(2,855)	(8,127)
Transfers of Other Income	3,732	0	1,427	5,159
Market Value Depreciation	(15,710)	(6,608)	(12,218)	(34,536)
Market Value–9/30/90 (see Note 2)	$116,075	$47,963	$89,291	$253,329

Note 1: Income earned, less managers' fees of $1,100 thousand.
Note 2: Nonpooled Endowment Funds have a market value of $1,187 thousand for a total endowment market value of $254,516 thousand.

Table 7. Endowment Funds, September 30, 1990

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
UNRESTRICTED PURPOSE—TRUE:				
Avery Fund (see Note 1)	$ 234,139	$ 261,719	$ 9,649	$ 0
Higbee, Harry, Memorial	84,178	90,784	2,947	0
Hodgkins Fund (see Note 1)	347,887	356,287	21,127	0
Morgan, Gilbert B. and Betty J. Memorial Fund	37,704	35,852	1,164	0
Morrow, Dwight W.	419,409	473,678	15,376	0
Mussinan, Alfred	128,250	138,524	4,496	0
Olmsted, Helen A.	4,350	4,835	157	0
Poore, Lucy T. and George W. (see Note 1)	928,937	1,048,003	36,217	0
Porter, Henry Kirke, Memorial	1,550,066	1,749,119	56,777	0
Sanford, George H. (see Note 1)	6,395	7,009	318	0
Smithson, James (see Note 1)	777,378	776,454	69,828	0
Walcott, Charles D. and Mary Vaux, Research (Designated)	2,421,778	2,726,049	88,489	94,734
Subtotal	6,940,471	7,668,313	306,545	94,734
UNRESTRICTED PURPOSE—QUASI:				
Ettl, Charles H. Fund	1,088,997	1,046,285	33,963	0
Ferguson, Frances B. Endowment	503,473	475,248	7,290	0
Forrest, Robert Lee	5,534,752	5,271,128	171,103	0
General Endowment (see Note 1)	88,661,142	87,133,591	2,799,819	0
Goddard, Robert H.	43,812	41,744	1,355	0
Habel, Dr. S. (see Note 1)	718	717	65	0
Hart, Gustavus E.	2,963	3,124	101	0
Henry, Caroline	7,324	7,705	250	0
Henry, Joseph and Harriet A.	293,993	308,159	10,003	0
Heys, Maude C.	533,561	512,909	16,649	0
Hinton, Carrie Susan	147,515	150,043	4,870	0
Koteen, Dorothy B.	198,962	178,980	5,736	0
Lambert, Paula C.	267,423	275,272	8,935	0
Medinus, Grace L.	5,292	5,105	166	0
O'Dea, Laura I.	178,118	175,268	5,689	0
Phillips, Roy R., Estate	746,753	706,165	22,908	0
Rhees, William Jones (see Note 1)	3,694	3,834	173	0
Safford, Clara Louise	245,580	239,575	7,777	0
Smithsonian Bequest Fund (see Note 1)	1,167,191	853,302	24,693	0
Sultner, Donald H. Endowment	423,252	642,814	25,276	0
Taggart, Ganson	2,608	2,919	95	0
Abbott, William L. (Designated)	689,410	724,340	23,512	57,421
Barstow, Frederic D. (Designated)	5,768	6,054	197	5,676
Hirshhorn Museum Acquisition Fund (Designated)	3,847,921	3,734,900	121,237	0
Lindbergh Chair of Aerospace History (Designated)	2,558,459	2,508,708	81,434	138,519
Lindbergh, Charles A. (Designated)	41,885	40,390	1,311	7,453
Lyon, Marcus Ward, Jr. (Designated)	22,100	21,584	701	7,768
Smithsonian Agency Account (Designated)	35,592	33,061	1,059	0
Smithsonian Press Scholarly Books Fund (Designated)	1,676,459	1,758,005	57,066	115,746

Table 7. Endowment Funds, September 30, 1990 (*continued*)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Smithsonian Tropical Research Institute Endowment Fund (Designated)	1,464,107	1,535,324	49,837	39,750
Webb, James E., Fellowship (Designated)	1,185,698	1,058,223	34,350	115,026
Subtotal	111,589,522	109,454,476	3,517,620	487,359
Total Unrestricted Purpose	$118,529,993	$117,122,789	$3,824,165	$ 582,093
RESTRICTED PURPOSE–TRUE:				
Aitken, Annie Laurie, Endowment Fund	$ 279,072	$ 294,037	$ 9,545	$ 27,998
Arthur, James	208,930	237,250	7,701	9,765
Baird, Spencer Fullerton	188,260	212,077	6,884	16,160
Barney, Alice Pike, Memorial	149,756	170,015	5,519	57,222
Batchelor, Emma E.	175,962	175,862	5,709	135,633
Beauregard, Catherine, Memorial	226,277	237,581	7,712	97,972
Bergen, Charlotte V.	18,636	17,559	570	3,916
Brown, Roland W.	166,826	176,272	5,722	11,227
Burch, George, Fellowship in Theoretic Medicine and Affiliated Theoretic Sciences Fund	1,734,256	1,595,587	70,638	59,901
Canfield, Frederick A.	220,660	261,396	8,485	176
Casey, Thomas Lincoln	72,503	76,168	2,472	8,282
Chamberlain, Frances Lea	147,040	166,933	5,419	34,872
Cooper Fund for Paleobiology	195,833	185,080	5,911	172
Division of Mammals Curators Fund	10,508	10,757	349	6,775
Drake Foundation	961,824	971,779	31,416	200,182
Drouet, Francis and Louderback, Harold B. Fund	299,509	283,499	9,202	62,904
Dykes, Charles, Bequest	279,086	288,648	9,370	57,302
Eaton, Harriet Phillips	64,172	58,238	1,564	1,564
Eickemeyer, Florence Brevoort	56,741	64,410	2,091	10,183
Eppley Memorial	30,105	27,322	734	734
Forbes, Edward Waldo	878,424	820,593	26,637	105,117
Freer, Charles L.	45,721,490	47,962,951	1,556,899	2,668,407
Global Environmental Endowment Fund	3,006	2,717	66	66
Grimm, Sergei N.	157,579	150,271	4,878	48,432
Groom, Barrick W.	160,721	151,268	4,910	20,988
Guggenheim, Daniel and Florence	624,351	613,693	19,921	94,911
Hamilton, James (see Note 1)	5,800	6,151	406	3,829
Henderson, Edward P., Meteorite Fund	123,657	106,028	3,442	4,714
Hewitt, Eleanor G., Repair Fund	38,147	38,584	1,252	2,182
Hewitt, Sarah Cooper	225,409	227,745	7,393	11,240
Hillyer, Virgil	38,020	39,943	1,297	17,017
Hitchcock, Albert S.	8,330	9,504	308	1,108
Hodgkins Fund (see Note 1)	143,480	143,321	12,895	23,251
Hrdlicka, Ales and Marie	278,084	295,367	9,588	17,774
Hughes, Bruce	100,025	113,600	3,687	18,214
Huntington Publication Fund	250,613	227,439	6,107	6,122
Johnson, Seward, Trust Fund for Oceanography	18,955,725	19,948,501	647,537	163,771
Kellogg, Remington and Marguerite, Memorial	297,302	290,605	8,638	15,305
Kramar, Nada	15,056	15,528	504	7,382

Table 7. Endowment Funds, September 30, 1990 (*continued*)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Maxwell, Mary E.	102,490	116,393	3,778	57,443
Mellon Publications Endowment Fund	384,113	350,099	7,602	7,812
Milliken, H. Oothout, Memorial	1,123	1,134	37	221
Mineral Endowment	514,312	523,827	17,004	524
Mitchell, William A.	70,026	71,508	2,321	2,993
Museum of the American Indian—Heye Foundation	917,287	832,465	22,352	22,409
Nelms, Henning Endowment Fund	220,336	189,774	6,148	15,304
Nelson, Edward William	118,667	131,806	4,278	3,671
Petrocelli, Joseph, Memorial	38,831	44,149	1,433	16,505
Reid, Addison T. (see Note 1)	118,622	123,784	4,925	14,232
Ripley, S. Dillon and Mary Livingston	178,585	174,869	5,551	24
Roebling Fund	628,266	712,007	23,112	977
Rollins, Miriam and William	1,298,876	1,378,746	44,390	36,791
Schmitt, John J.	18,750	17,016	457	457
Sims, George W.	143,779	135,772	4,407	13,454
Sprague Fund	8,189,551	8,242,865	265,389	236,128
Springer, Frank	93,879	106,247	3,449	33,831
Stern, Harold P., Memorial	1,013,465	1,014,595	32,931	263,531
Stevenson, John A., Mycological Library	27,722	29,028	942	4,704
Stuart, Mary Horner	403,631	368,809	11,972	22
Walcott, Charles D. and Mary Vaux, Research	849,943	889,480	28,570	26,618
Walcott Research Fund, Botanical Publications	305,043	359,367	11,665	23,689
Williston, Samuel Wendell Diptera Research	28,746	27,990	924	7,874
Williams, Blair & Elsie	39,480	35,829	962	962
Zerbee, Frances Brinckle	4,933	5,587	181	7,821
Subtotal	89,221,631	92,557,425	3,018,158	4,831,267
RESTRICTED PURPOSE—QUASI:				
Armstrong, Edwin James	20,632	20,456	653	0
Au Panier Fleuri	103,011	98,312	3,191	2,549
Bacon, Virginia Purdy	489,414	493,433	16,017	79,679
Becker, George F.	844,755	854,040	27,722	20,144
Denghausen, Lunsta L. and Franz H. Fund	4,177,172	4,157,011	134,925	240,748
Desautels, Paul E.	39,873	44,992	1,782	19,138
Gaver, Gordon	9,388	9,338	303	2,029
Hachenberg, George P. and Caroline	24,227	25,960	843	7,545
Hammond, John, Performance Series Fund	267,531	230,280	7,309	8,249
Hanson, Martin Gustav and Caroline R.	51,403	53,992	1,753	16,680
Hirshhorn Collections Endowment Fund	5,178,210	4,756,417	154,395	390,619
Hirshhorn, Joseph H., Bequest Fund	2,113,184	2,053,242	116,792	555,689
The Holenia Trust Fund	4,972,236	5,024,883	163,110	186,720
Hunterdon Endowment	17,054,411	17,741,223	575,888	277,497
ICBP Endowment	1,086,532	1,050,298	34,039	45,687
ICBP Conservation Endowment	233,080	223,298	7,188	21,408
Johnson, E. R. Fenimore	41,035	39,976	1,298	7,587
Loeb, Morris	508,138	535,482	17,382	41,351

Table 7. Endowment Funds, September 30, 1990 (*continued*)

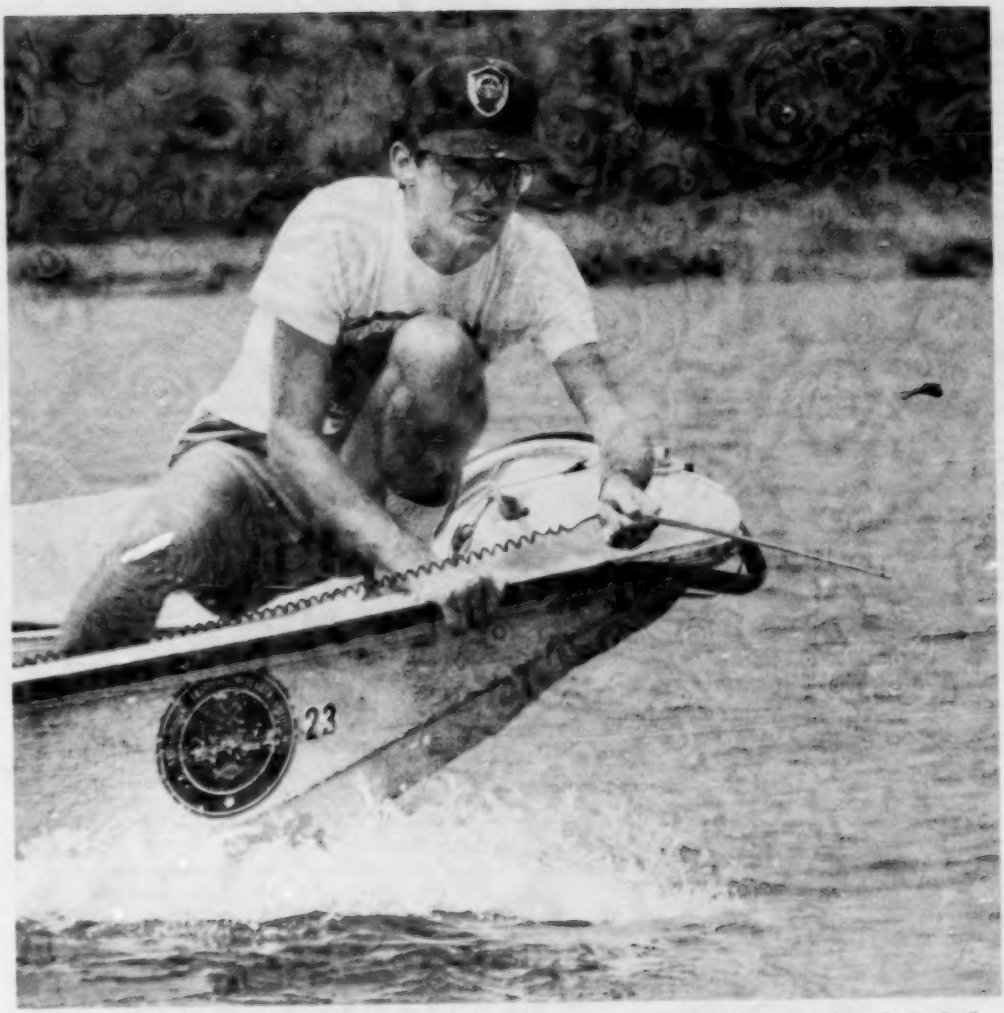
	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Long, Annette E. and Edith C.	2,889	3,307	107	854
Myer, Catherine Walden	116,834	122,725	3,984	35,835
Noyes, Frank B.	5,794	6,186	201	5,007
Noyes, Pauline Riggs	48,522	46,326	1,504	5,414
Pell, Cornelia Livingston	43,056	45,306	1,471	9,459
Ramsey, Adm. and Mrs. Dewitt Clinton (see Note 1)	1,026,211	1,081,506	34,641	34,989
Rathbun, Richard, Memorial	61,716	64,916	2,107	25,364
Roebling Solar Research	136,311	139,571	4,531	16,909
Ruef, Bertha M.	159,962	155,788	5,057	4,720
Schultz, Leonard P.	97,016	95,348	3,094	31,153
Seidell, Atherton	3,345,559	3,374,159	109,527	560,971
Smithsonian Agency Account	1,449,930	1,443,834	47,628	254
Strong, Julia D.	58,000	61,000	1,980	12,249
Witherspoon, Thomas A., Memorial	745,452	782,709	25,407	169,002
Subtotal	44,511,484	44,835,314	1,505,829	2,835,499
Total Restricted Purpose	133,733,115	137,392,739	4,523,987	7,666,766
TOTAL ENDOWMENT FUNDS (see Note 2)	$252,263,108	$254,515,528	$8,348,152	$8,248,859

Note 1: Invested all or in part in U.S. Treasury or other nonpooled investments.
Note 2: Income on Investments; does not include $460,515.67 of interest income which is included in unexpended balances.

Table 8. Construction and Plant Funds,
Fiscal Years 1989 and 1990 (in $1,000s)

	FY 1989	FY 1990
FUNDS PROVIDED		
Federal Appropriations:		
National Zoological Park	$ 5,305	$ 6,500
Restoration and Renovation of Buildings	20,735	26,769
Construction Planning and Minor Construction	2,770	4,770
Tropical Research Institute–Research Facilities	2,700	1,930
Astrophysical Observatory–Whipple Base Camp	3,185	0
National Museum of American Indian	0	1,620
Total Federal Appropriations	34,695	41,589
Nonappropriated Trust Funds:		
Income-Gift and Other		
Environmental Research Center–Land Acquisitions	172	37
Tropical Research Institute–Research Facilities	161	1,177
Cooper-Hewitt Museum	231	52
Quadrangle and Related	2,719	462
Visitor Information and Reception Center	1,164	29
Other (see Note 1)	399	(82)
Total Income	4,846	1,675
Transfers from Other Funds:		
Visitors Information and Reception Center (see Note 1)	0	(6)
Total Transfers	0	(6)
Total Funds Provided	$39,541	$43,258

Note 1: Funds reclassified to current operating funds.



Dr. Robert Dudley, STRI posdoctoral fellow, uses a hand-held anemometer to measure the flight speed of a butterfly. Dr. Dudley and Robert Srigley, NSF predoctoral fellow from the University of Texas, are studying the correlation between the palatability of butterflies and their flight velocity, morphology, and body temperature. (Photo by Carl Hansen)

Coopers & Lybrand
Certified Public Accountants

Report of Independent Accountants

To the Board of Regents
Smithsonian Institution

We have audited the accompanying statement of financial condition of the Smithsonian Institution as of September 30, 1990, and the related statement of financial activity for the year then ended. These financial statements are the responsibility of the Institution's management. Our responsibility is to express an opinion on these financial statements based on our audit. We previously audited and reported upon the financial statements of the Smithsonian Institution for the year ended September 30, 1989, totals of which are included in the accompanying financial statements for comparative purposes only.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Smithsonian Institution as of September 30, 1990, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles.

Coopers & Lybrand

Washington, D.C.
December 28, 1990

Smithsonian Institution Statement of Financial Condition, September 30, 1990
(with comparative totals for September 30, 1989) (thousands of dollars)

	Trust funds	Federal funds	Totals, all funds	Totals, 1989
ASSETS:				
Fund balances with U.S. Treasury and cash on hand	$ 1,143	$111,916	$113,059	$100,891
Investments (Note 3)	323,863	—	323,863	303,899
Receivables (Note 5)	48,335	9,746	58,081	54,874
Advance payments (Note 6)	—	18,606	18,606	21,743
Inventories	16,491	1,805	18,296	17,037
Prepaid, deferred expense and other	18,151	—	18,151	16,324
Property and equipment (Note 7)	75,271	261,847	337,118	323,606
Total assets	$483,254	$403,920	$887,174	$838,374
LIABILITIES:				
Accounts payable:				
Accounts payable and accrued expenses	24,856	22,838	47,694	38,194
Interfund payable	9,929	—	9,929	9,764
Payable for investment securities purchased	2,760	—	2,760	10,070
Deposits held in custody for other organizations (Note 2)	3,532	—	3,532	3,148
Accrued annual leave	—	9,584	9,584	11,531
Deferred revenue	43,286	—	43,286	37,653
Long-term debt (Note 9)	11,101	—	11,101	11,313
Total liabilities	95,464	32,422	127,886	121,673
Undelivered orders	—	71,688	71,688	67,489
Commitments and contingencies (Note 8)				
FUND BALANCES (deficit):				
Trust Current:				
Unrestricted general purpose	13,769	—	13,769	13,300
Special purpose	35,313	—	35,313	33,808
Restricted	24,975	—	24,975	20,948
Trust Endowment and similar funds (Note 4)	252,263	—	252,263	237,788
Trust Plant funds (Note 7)	61,470	—	61,470	62,025
Federal Operating funds (Note 10)	—	(531)	(531)	1,312
Federal Construction funds	—	36,689	36,689	32,189
Federal Capital funds	—	263,652	263,652	247,842
Total fund balances	387,790	299,810	687,600	649,212
Total liabilities, undelivered orders, and fund balances	$483,254	$403,920	$887,174	$838,374

The accompanying notes are an integral part of these financial statements.

Smithsonian Institution Statement of Financial Activity for theyear ended September 30, 1990
(with comparative totals for the year ended September 30, 1989) (thousands of dollars)

	Trust funds				
	Totals, trust funds	Current funds	Endowment and similar funds	Plant funds	Totals, federal funds
REVENUE AND OTHER ADDITIONS:					
Appropriations	$ —	$ —	$ —	$ —	$266,690
Government grants and contracts	29,089	29,089	—	—	—
Investment income	18,447	17,870	—	577	—
Net gain on sale of securities	5,025	—	5,025	—	—
Gifts, bequests, and foundation grants	24,485	21,616	1,774	1,095	—
Additions to plant	2,719	—	—	2,719	42,287
Rentals, fees, commissions, and other	10,027	10,024	—	3	2,097
Auxiliary activities	194,062	194,062	—	—	—
Total revenue and other additions	283,854	272,661	6,799	4,394	311,074
EXPENDITURES AND OTHER DEDUCTIONS:					
Research, educational, and collection acquisitions (Note 11)	71,921	71,921	—	—	143,747
Administration	20,878	20,878	—	—	19,699
Facilities services	1,388	1,388	—	—	65,884
Acquisition of plant	2,429	1	—	2,428	36,711
Property use and depreciation (Note 7)	2,515	—	—	2,515	26,477
Auxiliary activities	164,802	164,802	—	—	—
Total expenditures and other deductions	263,933	258,990	—	4,943	292,518
Excess of revenue and other additions over (under) expenditures and other deductions	19,921	13,671	6,799	(549)	18,556
TRANSFERS AMONG FUNDS—ADDITIONS (DEDUCTIONS) (Note 12)	—	(7,670)	7,676	(6)	—
Net increase for the year	19,921	6,001	14,475	(555)	18,556
Return to U.S. Treasury	—	—	—	—	(89)
Fund balances at beginning of year	367,869	68,056	237,788	62,025	281,343
FUND BALANCES AT END OF YEAR	$387,790	$ 74,057	$252,263	$61,470	$299,810

The accompanying notes are an integral part of these financial statements.

Federal funds				
Operating funds	Construction funds	Capital funds	Totals, all funds	Totals, 1989
$225,479	$41,211	$ —	$266,690	$245,935
—	—	—	29,089	20,977
—	—	—	18,447	17,747
—	—	—	5,025	9,428
—	—	—	24,485	28,353
—	—	42,287	45,006	55,283
2,097	—	—	12,124	10,134
—	—	—	194,062	190,395
227,576	41,211	42,287	594,928	578,252
143,747	—	—	215,668	191,656
19,699	—	—	40,577	35,878
65,884	—	—	67,272	63,474
—	36,711	—	39,140	33,204
—	—	26,477	28,992	26,943
—	—	—	164,802	161,363
229,330	36,711	26,477	556,451	512,518
(1,754)	4,500	15,810	38,477	65,734
—	—	—	—	—
(1,754)	4,500	15,810	38,477	65,734
(89)	—	—	(89)	(89)
1,312	32,189	247,842	649,212	583,567
$ (531)	$36,689	$263,652	$687,600	$649,212

Smithsonian Institution Notes to Financial Statements

1. Summary of Significant Accounting Policies

Basis of Presentation

These financial statements do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, or the Woodrow Wilson International Center for Scholars, which were established by Congress within the Smithsonian Institution (the Institution) but are adminsitered under separate boards of trustees.

The financial statements of the Institution with respect to Federal Appropriations have been prepared on the obligation basis of accounting, which is in accordance with accounting principles prescribed by the Comptroller General of the United States as set forth in the *Policy and Procedures Manual for Guidance of Federal Agencies*. The obligation basis of accounting differs in some respects from generally accepted accounting principles. Under this method of accounting, approximately $44,926,000 of commitments of the operating fund, such as purchase orders and contracts, have been recognized as expenditures, and the related obligations have been reported on the Statement of Financial Condition at September 30, 1990, even though the goods and services have not been received. Approximately $13,242,000 of these commitments are for grants under the foreign currency program. Approximately $14,416,000 of these commitments are for internal storage facilities and equipment at the Museum Support Center. In addition, construction fund commitments for other projects amounted to approximately $26,762,000 at September 30, 1990.

The trust funds reflect the receipt and expenditure of funds obtained from private sources, government grants and contracts, investment income, and certain business activities related to the operations of the Institution.

Fund Accounting

To ensure observance of the limitations and restrictions placed on the use of resources available to the Institution, accounts are maintained in accordance with the principles of fund accounting. This procedure classifies resources for control, accounting, and reporting purposes into distinct funds established according to their appropriation, nature, and purposes. Funds that have similar characteristics have been combined into fund groups in the accompanying financial statements. Accordingly, all financial transactions have been recorded and reported by fund group.

The assets, liabilities, and fund balances of the Institution are self-balancing as follows:

Federal operating funds represent the portion of appropriated funds available for support of Institution operations.

Federal constructions funds represent that portion of appropriated funds available for building and facility construction, restoration, renovation, and repair. Separate subfund groups are maintained for each appropriation—Construction and Improvements, National Zoological Park, Resotration and Renovation of Buildings, Museum Support Center, and the Center for African, Near Eastern, and Asian Cultures (Quadrangle).

Federal capital funds represent the value of those assets of the Institution acquired with federal funds and nonexpendable property transfers from government agencies.

Trust current funds, which include unrestricted and restricted resources, represent the portion of nonappropriated funds available for the support of Institution operations. Amounts restricted by the donor for specific purposes are segregated from other current funds.

Trust endowment and similar funds include funds that are subject to restrictions of gift instruments requiring in perpetuity that the principal be invested and the income only be used. Also classified as endowment and similar funds are gifts that allow the expenditure of principal but only under certain specified conditions. Quasi-endowment funds are funds established by the governing board for the same purposes as endowment funds; however, any portion of such funds may be expended with board approval. Restricted quasi-endowment funds represent gifts for restricted purposes where there is no stipulation that the principal be maintained in perpetuity or for a period of time, but the governing board has elected to invest the principal and expend

only the income for the purpose stipulated by the donor.

Trust plant funds represent resources restricted for future plant acquisitions and funds expended for plant.

Investments

All investment income, except that of endowment and similar funds, and gains and losses arising from the sale of investments and property, are accounted for in the fund in which the related assets are recorded. Income of endowment and similar funds is accounted for in the fund to which it is restricted or, if unrestricted, as revenue in unrestricted current funds. Gains and losses on the sale of investments are recognized on the trade date basis using the average cost method.

Inventory

Inventories are carried at the lower of cost or market. Cost is determined using the first-in, first-out (FIFO) method or retail cost method (for those inventories held for resale). Merchandise inventory approximated $16,491,000 and materials and supplied inventory approximated $1,805,000 at September 30, 1990.

Deferred Revenue and Expense

Revenue from subscriptions to *Smithsonian* magazine and *Air & Space/Smithsonian* magazine is recorded as income over the period of the related subscription, which is generally one year. Costs related to obtaining subscriptions to *Smithsonian* magazine and *Air & Space/Smithsonian* magazine are charged against income over the period of the subscription.

The Institution recognizes revenue and charges expenses of other auxiliary activities during the period in which the activity is conducted.

Works of Art, Living or Other Specimens

The Institution acquires its collections, which include works of art, library books, photographic archives, objects, and specimens, through purchase by federal or private funds or by donation. In accordance with policies generally followed by museums, no value is assigned to the collections on the statement of financial condition. Purchases for the collections are expensed currently.

Property and Equipment—Federal Funds

Property and equipment purchased with federal funds are recorded in the capital funds at cost and depreciated on a straight-line basis over their useful lives as follows:

Buildings	30 years
Major renovations	15 years
Nonexpendable equipment	10 years

Certain lands occupied by the Institution's buildings were appropriated and reserved by Congress for the Institution and are not reflected in the accompanying financial statements. Property and nonexpendable equipment acquired through transfer from government agencies are capitalized at the transfer price or at estimated amounts, taking into consideration usefulness, condition, and market value.

Property and Equipment—Trust Funds

Property and equipment purchased with trust funds for use by nonincome-producing activities are recorded at cost, or appraised value at date of gift, except for gifts of certain islands in the Chesapeake Bay and the Carnegie Mansion, which have been recorded at nominal values. Property and equipment are treated as a deduction of the current fund and as a capitalized cost of the plant fund.

Property and equipment for use by nonincome-producing activities are depreciated on the straight-line basis over their useful lives as follows:

Buildings	30 years
Major renovations	15 years
Equipment	10 years

Depreciation is recorded in the plant fund as a deduction to the investment in plant.

Capital improvements and equipment purchased with trust funds and utilized in income-producing activities are capitalized at cost and are depreciated on a straight-line basis over their estimated useful lives of 3 to 10 years.

Government Grants and Contracts

The Institution has a number of grants and contracts with the U.S. Government, which primarily provide for cost reimbursement to the Institution. Grant and contract revenue is recognized within trust funds as expenditures are incurred.

Pledges and Donations

The Institution records significant pledges based upon letters signed by donors. Pledges are recorded at net realizable value as a receivable and as deferred revenue on the statement of financial condition. Revenue from pledges is recognized in the year the pledged funds are collected.

Donations are recognized as revenue in the year the cash is received.

Contributed Services

A substantial number of unpaid volunteers have made significant contributions of their time in the furtherance of the Institution's programs. The value of this contributed time is not reflected in these statements in accordance with generally accepted accounting principles.

Annual Leave

The Institution's civil service employees earn annual leave in accordance with federal law and regulations. However, only the cost of leave taken as salaries is funded and recorded as an expense. The cost of unused annual leave at year-end is reflected in the accompanying financial statements as an asset and an accrued liability in the federal funds.

Annual leave is expensed for trust employees in the trust fund as earned.

2. Related Activities

The Institution provides certain fiscal and administrative services to several separately incorporated organizations in which certain officials of the Institution serve on the governing boards. The amounts paid to the Institution by these organizations for the aforementioned Services, together with rent for Institution facilities occupied, totaled $293,000 ($214,000 for the trust funds and $79,000 for the federal funds) for the year ended September 30, 1990. Deposits held in custody for these organizations were $8,138,000 as of September 30, 1990.

The following summarizes the unaudited expenditures of these organizations for the fiscal year ended September 30, 1990, as reflected in their individual financial statements, which are not included in the accompanying financial statements of the Institution:

Reading Is Fundamental, Inc.	$8,396,000
Woodrow Wilson International Center for Scholars:	
Federal appropriations	$4,638,000

3. Investments

Investments are recorded at cost on a trade date basis, if purchased, or estimated fair market value at date of acquisition, if acquired by gift. At September 30, 1990, investments were composed of the following:

	Carrying value ($000s)	Market value ($000s)
Current funds:		
Short-term investments	$ 72,437	$ 72,530
Endowment and similar funds:		
Short-term cash equivalents	47,555	44,982
Deposit with U.S. Treasury	1,137	1,159
U.S. Government and quasi-government obligations	52,678	52,537
Corporate bonds and other obligations	26,535	26,105
Common and preferred stock	122,802	128,177
Charitable trusts	595	701
	251,302	253,661
Plant funds:		
Common stock	125	183
Total investments	$323,864	$324,374

The deposit with the U.S. Treasury is invested in U.S. Government securities at a variable yield based on market rates.

Substantially all the investments of the endowment and similar funds are pooled on a market value basis (consolidated fund) with each individual fund subscribing to or disposing of units on the basis of the per unit market value at the beginning of the month within which the transaction takes place. As of September 30, 1990, 315,961 units were owned by endowment funds, and 490,262 units were owned by quasi-endowment funds.

The following tabulation summarizes changes in relationships between cost and market values of the pooled investments:

	($000s)		
	Market	Cost	Change
End of year	$253,329	$251,098	$ 2,231
Beginning of year	276,613	234,799	41,814
Decrease in unrealized net gain for the year			(39,583)
Realized net gain for the year			5,045
Net change			$(34,538)

4. Endowment and Similar Funds

The Institution utilizes the "total return" approach to investment management of endowment funds and quasi-endowment funds. Under this approach, an amount equal to the difference between actual interest and dividends earned during the year and the amount computed under the total return formula is transferred to or from the current funds.

In applying this approach, it is the Institution's policy to provide, as being available for current expenditures, an amount taking into consideration such factors as, but not limited to: (1) 4½% of the five-year average of the market value of each fund (adjusted for gifts and transfers during this period), (2) current dividend and interest yield, (3) support needs for bureaus and scientists, and (4) inflationary factors as measured by the Consumer Price Index. However, where the market value of the assets of any endowment fund is less than 110% of the historic dollar value (value of gifts at date of donation), the amount provided is limited to only interest and dividends received.

The total return factor for 1990 was $10.20 per unit, equivalent to 4% of the five-year average of the Market Value of each participating fund. Actual dividends and interest earned exceeded the total return for the year, and this excess was transferred from the current funds to the endowment funds (see Note 12).

5. Receivables

Receivables at September 30, 1990, include the following:

	($000s)		
	Trust funds	Federal funds	Totals, all funds
Auxiliary activities and other accounts receivable, net of $6,365,000 allowance for doubtful accounts	$20,662	$ —	$20,662
Receivables for investment securities sold	1,721	—	1,721
Pledges receivable	7,827	—	7,827
Endowment notes receivable	28	—	28
Reimbursements due from grants and contracts	4,171	—	4,171
Interest and dividends receivable	3,997	—	3,997
Interfund receivables	9,929	—	9,929
Value of accrued annual leave	—	9,584	9,584
Other	—	162	162
	$48,335	$9,746	$58,081

6. Advance Payments

Advance payments represent prepayments made to government agencies, educational institutions, firms, and individuals for services to be rendered, or property or materials to be furnished.

As of September 30, 1990, the Institution had advances outstanding to the General Services Administration of $14,313,000, principally for construction services including the Museum Support Center and other projects to be completed in future fiscal years. The Institution at that date also had advances outstanding to educational institutions amounting to approximately $1,902,000, principally under the Special Foreign Currency Program.

7. Property and Equipment

At September 30, 1990, property and equipment comprised the following:

	($000s)	($000s)
Trust		
Current funds		
Capital improvements	$ 23,412	
Equipment	9,186	
Leasehold improvements	1,620	
Less: accumulated depreciation and amortization	(13,158)	
	21,060	
Plant funds		
Land and buildings	63,027	
Equipment	6,750	
Less: accumulated depreciation	(15,566)	
	54,211	
Total, trust funds		$75,271
Federal		
Capital funds		
Property	419,088	
Equipment	44,550	
Less: accumulated depreciation	(201,791)	
Total, federal funds		261,847
Total, all funds		$337,118

Included in this accumulated depreciation of the federal capital funds is $20,947,000 of depreciation expense for 1990.

Depreciation and amortization expense in the trust funds for fiscal 1990 for income-producing assets amounted to $3,061,217 and is included in the current funds. Depreciation of nonincome-producing equipment and buildings for 1990 amounted to $2,627,985 and is included in the plant fund. The balance of the plant fund at September 30, 1990, included $7,260,000 of unexpended funds for future plant acquisitions.

8. Commitments and Contingencies

Leases for various Smithsonian warehouse and office spaces provide for escalation of rents to coincide with

increases in property taxes, operating expenses attributable to the leased property, and the Consumer Price Index.

The Institution's operating leases require future minimum lease payments as follows:

Lease payments	($000s)
1991	$ 5,463
1992	5,335
1993	3,800
1994	3,293
1995	2,968
Thereafter	649
	$21,508

Rental expense for office facilities aggregated approximately $4,561,000 in 1990.

9. Long-term Debt

Long-term debt as of September 30, 1990 consists of the following:

	($000s)
9% note payable to The Riggs National Bank, interest only payable quarterly commencing December 31, 1986; interest and principal payable quarterly commencing September 30, 1991, and ending on June 30, 1998	$11,000,000
9% note payable for purchase of Folkways Records and Service Corporation, due in four annual installments, commencing December 31, 1987	100,000
	$11,100,000

The aggregate amoung due for all borrowings for the years ending September 30 are as follows: $386,000 in 1991; $1,211,000 in 1992; $1,324,000 in 1993; $1,447,000 in 1994; $1,582,000 in 1995; and $5,150,000 in years thereafter.

The proceeds of the note with The Riggs National Bank were used to fund construction of a restaurant addition to the National Air and Space Museum. Approximately $990,000 was recorded as interest expense and was paid by Auxiliary Activities funds for fiscal year 1990.

10. Federal Operating Funds

The federal operating funds include appropriations for salaries and expenses that are expended in the year received. Also included are amounts received with the provision that such amounts can be expended over a period greater than one year.

The federal operating funds for the year ended September 30, 1990, included the following:

	($000s)		
	Revenues and other additions		Fund balance (deficit) at September 30, 1990
	Appropriations	Other	
Salaries and expenses	$225,479	$ —	$(1,907)
Special Foreign Currency Program	—	—	77
U.S. India Fund (transfers from Department of State)	—	2,001	1,258
Smithsonian Tropical Research Institute	—	137	39
	$225,479	$2,138	$ (531)

On July 11, 1990, a settlement was awarded in the amount of $3,022,350 arising out of a suit against the United States by a contractor who was defaulted by the General Services Administration for failure to complete a project for the Museum Support Center in a timely fashion. This mandatory obligation falls outside the provisions of the Antideficiency Act. According to accounting principles prescribed by the Comptroller General of the United States, the Institution has recognized this expense, in the year of settlement by the United States, which results in an operating fund deficit. The Institution will request a supplemental appropriation in order to restore the operating fund deficit.

11. Collections Acquisitions

In accordance with policies generally followed by museums, the Institution records the acquisition of collections as an expense in the year of purchase. For fiscal year 1990, $5,702,315 was expensed to trust funds and $1,179,118 to federal funds for the acquisition of collections.

12. Transfers among Funds

The following transfers increased (decreased) respective fund balances for the year ended September 30, 1990:

	($000s)			
	Current funds		Endowment and similiar funds	Plant funds
	Unrestricted	Restricted		
Total return income reinvested	$(1,988)	$(2,630)	$4,618	$—
Income reallocated for special purposes	140	(134)	—	(6)
Endowment reallocated to restricted funds	—	526	(526)	—
Designated as quasi-endowment	(3,524)	(60)	3,584	—
Other	162	(162)	—	—
Total transfers among funds	$(5,210)	$(2,460)	$7,676	$(6)

13. Retirement Plans

The federal employees of the Institution are covered by either the Civil Service Retirement System (CSRS) or the Federal Employee Retirement System (FERS). The features of both of these systems are defined in published government documents. Under both systems, the Institution withholds from the salary of each federal employee the percentage of salary required; the Institution also contributes specified percentages. The cost of the programs for the year ended September 30, 1990, was $10,612,000.

The Institution has a separate retirement plan for trust employees. Under the plan, both the Institution and the employees contribute stipulated percentages of salary, which are used to purchase individual annuities, the rights to which are immediately vested with the employees. The Institution's cost of the plan for the year ended September 30, 1990, was $5,643,000.

It is the policy of the Institution to fund the accrued costs of all plans currently. There are no unfunded prior service costs under the plans.

14. Income Taxes

The Institution is exempt from income taxation under the provisions of Section 501(c)(3) of the Internal Revenue Code. Organizations described in that section are taxable only on their unrelated business income. No provision for income taxes is required for the year ended September 30, 1990, since the Institution had a net loss from unrelated business activity.

It is the opinion of the Institution that it is also exempt from taxation as an instrumentality of the United States as defined in Section 501(c)(1) of the Code. Organizations described in that section are exempt from all income taxation. The Institution has not as yet formally sought such dual status.

15. Museum of the American Indian

On November 28, 1989, the president of the United States approved legislation to establish the National Museum of the American Indian within the Smithsonian Institution. The legislation gave authority to the Board of Regents to enter into an agreement to transfer certain assets, works of art, and the endowment of the Museum of the American Indian, located in New York City, to the Institution. The transfer took place effective June 21, 1990. On that date certain assets including cash, inventory, other assets, trade accounts payable and other liabilities of $495,000, and the permanent endowment of $1,327,000 were transferred to the Institution Trust funds. In addition, on that date the Museum of the American Indian transferred and conveyed its entire collection to the Institution. The legislation authorized federal appropriations for the construction of the National Musuem of the American Indian, for administration and planning expenses, and for care and custody of the collection.

RESEARCH

Robert Hoffmann, Assistant Secretary for Research

International Center

Since its inception, the Smithsonian Institution has nourished a commitment to scholarly research through programs characterized by breadth, depth, and outreach. The Institution is well known for studies that benefit the entire scholarly community, from long-term baseline monitoring of ultraviolet radiation on the Earth to inventories of American painting and sculpture. Research is carried on worldwide by specialized institutes such as the Smithsonian Tropical Research Institute and the Smithsonian Astrophysical Observatory, as well as by museums and central support units such as the National Museum of Natural History, the art museums, and the Smithsonian Institution Archives.

The Institution continues to emphasize global environmental research. Smithsonian researchers are studying the function of natural and disturbed ecosystems and the dynamic role of the Sun and the atmosphere in the observed warming of the Earth's temperature. They are also seeking greater understanding of the structure and composition of natural communities and ecosystems so that the richness and stability of these systems may be maintained or restored in the face of increasing human pressures. An example of such fundamental research is the work being done by the systematic biologists in the Institution, on whose shoulders rests the responsibility for inventorying and describing the species richness of the biosphere.

Smithsonian research also focuses on understanding human social and cultural systems and maintaining their stability in the face of factors leading to social fragmentation and cultural breakdown. The Smithsonian's history and art museums examine the nature of changing cultures throughout the world, ranging from Japanese views of Westerners following the opening of Japan to contemporary West African art and culture, the influence on the Caribbean of the importation of peoples and their cultures during the slave trade, and the role of African American inventors in nineteenth-century America.

Scholarly research is by its very nature an individualistic enterprise, although like-minded scholars may band together to carry out team projects. The Smithsonian strives to maintain an institutional atmosphere that enhances creativity and leads to new insights about the natural and human worlds, thus enabling us to deal more successfully with the challenges we face now and in the future.

The International Center, established in 1983, is a point of convergence for the complex worldwide activities of the Institution. At the center, a global perspective on history, culture, and science is pursued in discussions, lectures, exhibitions, and performances, and the international programs of Smithsonian bureaus and offices are fostered. Its five divisions are the Office of International Relations, the International Gallery, the Office of Quincentenary Programs, the Office of Conference Services, the Office of Environmental Awareness, and the Smithsonian Institution Man and the Biosphere Biological Diversity Program. The International Center also houses the Council of American Overseas Research Centers.

Office of International Relations

The Office of International Relations supports Smithsonian activities abroad and coordinates the Institution's international interests through information gathering, logistical assistance, and diplomatic support. As the Institution's formal liaison branch, the office deals with international organizations, foreign affairs agencies, and institutions or individuals abroad seeking to establish cooperative relationships with the Smithsonian.

In 1990, the Office of International Relations coordinated visits to the Institution by Corazon Aquino, president of the Philippines, and Abdou Diouf, president of the Republic of Senegal, to formalize cooperative research and museum programs. As part of the development of joint research and training activities, the office organized meetings with the deputy director of the National Museums of Kenya; the minister of water, forests, and animal husbandry of Madagascar; representatives of the Central Region of Ghana; and officials of the Chinese Academy of Sciences. The office arranged for Alpha Oumar Konare of Mali, new president of the International Council of Museums, to attend a series of meetings with Smithsonian officials and to address the International Cultural Affairs Network, an organization of individuals involved in cultural exchange, for which the office acts as secretariat.

Among the many meetings that the office coordinated in 1990 were "U.S.-Soviet Exchange on Large Water Projects," a symposium sponsored in conjunc-

After discussions about opportunities for cooperative international research and museum programs, participants leave the S. Dillon Ripley Center. (Left to right: His Excellency Abdou Diouf, president of the Republic of Senegal; George E. Moose, U.S. Ambassador to Senegal; interpreter; and Robert S. Hoffmann, Smithsonian assistant secretary for research.)

tion with the Office of the Assistant Secretary for Research, Friends of the Earth, the Washington-Moscow Exchange, and the Organization of American-Soviet Exchanges; the sixth meeting of the U.S.-Pakistan Subcommission on Education and Culture; a meeting of the Indo-U.S. Subcommission on Education and Culture; and a seminar on museum management and outreach for a multicultural group of museum curators and administrators on a study tour of the United States sponsored by the U.S. Information Agency.

As part of its administrative services, the Office of International Relations oversees three funding programs designed to encourage international cooperation in scholarly activities: the Smithsonian Foreign Currency Program, the Smithsonian International Exchange Program, and the Suzanne Liebers Erickson Memorial Fund. The office obtains U.S. passports and foreign visas for travel abroad by staff and grant recipients, and it provides visa documentation for foreign researchers and museum professionals traveling to the Smithsonian, the National Gallery of Art, and a number of collaborating U.S. museums and zoos.

International Gallery

The "Caribbean Festival Arts" exhibition, organized by the St. Louis Art Museum, ended its nine-month run at the Smithsonian's International Gallery on February 15, 1990. The exhibition, which presented the carnival costumes of the Caribbean as an art form, was supported in its Smithsonian presentation by ancillary public programs that took a holistic look at the region and attracted a large, culturally diverse audience.

Among the programs was a series of scholarly dialogues, developed in collaboration with the Woodrow Wilson International Center for Scholars, that focused on the rich culture of the Caribbean, its intellectual life, its politics, and its natural resources. The series, which was edited for broadcast by more than 100 radio stations nationwide, covered such topics as "Caribbean Politics: 500 Years after Columbus" and "The Role of the Artist in an Evolving Nationalist Society." Among the distinguished Caribbean political leaders and scholars who participated were P. J. Patterson, deputy prime minister of Jamaica; Leslie Manigat, former president of Haiti; Rex Nettleford, pro-vice-chancellor, Univer-

sity of the West Indies; Sylvia Wynter, Stanford University; and George Lamming, Caribbean writer.

Office of Quincentenary Programs

The Office of Quincentenary Programs coordinates Smithsonian programs leading to the commemoration of the 500th anniversary of Columbus's landfall in the Americas. In 1990, the office's newsletter *The New World* was distributed to more than 9,000 individuals, organizations, and educational institutions throughout this hemisphere to promote public understanding of the consequences of the 1492 event. Future issues are planned.

In the course of the quincentenary commemoration, the Smithsonian will present more than 100 programs related to the cultural, historical, and scientific implications of the encounter between the original inhabitants of the Americas and Europeans, Africans, Asians, and other peoples. Exhibitions, public programs, symposia, publications, and television and radio programs are planned for audiences in the United States and throughout the world. An example is the five-part bilingual television series "The Buried Mirror: Reflections on the New World by Carlos Fuentes," written and narrated by the internationally acclaimed Mexican writer and scheduled for broadcast in 1992. The series explores Latin America, past and present, focusing on themes, institutions, beliefs, and symbols that have endured or changed during the past 500 years.

In 1990, the Office of Quincentenary Programs and the Mexican Cultural Institute, through the Embassy of Mexico, cosponsored a photographic exhibition, "Pre-Hispanic Foods of Mexico." The exhibition told the story of foods derived from the animal, plant, and mineral kingdoms, described the foods of pre-Columbian Mexico, and explained the survival, change, or disappearance of these foods. The exhibition, displayed in the International Center, featured more than 40 color photographs by Michel Zabé with Spanish-language text by Teresa Castelló of the Universidad Autónoma de México. The Office of Quincentenary Programs produced an English-language guide to the exhibition.

Planning meetings were held this year to develop a proposal for a Smithsonian Institute of the Americas. The proposed new institute—not a museum, but a dynamic operating entity—will facilitate interdisciplinary research on issues of high priority for the hemisphere by fostering scholarship, promoting the exchange of knowledge among experts in different disciplines and different countries who are concerned with similar issues, disseminating its findings, providing technical assistance to institutions with common interests, and offering training for the staffs of such institutions. The Office of Quincentenary Programs continues to work closely with the Association of Ibero-American Cultural Attachés and Ambassadors. The association has been especially helpful and enthusiastic in cosponsoring the Symposium of the Americas, to be held in May 1991.

Office of Conference Services

In 1990, the Office of Conference Services managed a record number of conferences, ranging from small seminars to large international congresses. Produced in collaboration with museums and offices throughout the Institution, these gatherings afforded Smithsonian scholars and professional staff rich opportunities for the exchange of information, ideas, and experiences with their colleagues and with public audiences. Many of the conferences and symposia were direct outgrowths of research and exhibition projects of Smithsonian curators. The office's logistical assistance further allowed the Institution to play host to diverse cultural and scientific associations whose activities are related to Smithsonian research interests.

Two November conferences were representative of those initiated by Smithsonian scholars. "Disease and Demography in the Americas: Changing Patterns before and after 1492," grew out of research for the National Museum of Natural History's upcoming "Seeds of Change" exhibition. Produced in collaboration with the museum's Office of Quincentenary Programs, this symposium examined the dynamics of health and disease in human populations of the Old and New Worlds before and after the 1492 encounter. It involved approximately 200 scholars in anthropology, archaeology, demography, history, and health.

Also in November, the office worked with the Glennan-Webb-Seamans Project for Research in Space History, National Air and Space Museum, to produce an applied research conference titled "Preserving the His-

His Excellency Gustavo Petricioli, Ambassador of Mexico, and Secretary Adams attend the opening reception for the exhibition "Pre-Hispanic Foods of Mexico" in the International Gallery.

tory of the Aerospace Industry." This conference provided a forum for archivists and historians to exchange information with industry professionals on establishing and maintaining corporate archives.

Among the organizations that the Smithsonian hosted during the year were the International Council for Archaeozoology, for its sixth international conference; the Textile Society of America, for its second biennial symposium; and the Scientific Instrument Commission of the International Union of the Historical Philosophy of Science, for its 10th scientific instruments symposium.

Smithsonian Institution Man and the Biosphere Biological Diversity Program

The protection of biological diversity is one of the greatest challenges today. Biological diversity is inextricably linked to human welfare because it provides all essential life-support services. Never before have so many different ecosystems, especially in developing countries, been so threatened.

The Smithsonian Institution Man and the Biosphere Biological Diversity Program (SI/MAB) addresses the challenge of protecting the biological and cultural diversity of developing countries. In the field, classrooms, and museums, the program conducts training in conservation biology, natural resource management, wildlife and wildland management, and research methods.

Programs are carried out in developing countries where host-country resource managers have identified environmental problems. Program scientists from SI/MAB design and implement training programs in concert with host-country and international organizations and experts to help ensure that each nation's conservation priorities are addressed. The program has established contacts within the conservation community in most Latin American countries and working partnerships with counterparts in Bolivia, Brazil, Ecuador, Guatemala, Panama, Nicaragua, Mexico, Belize, and Puerto Rico. Since 1987, nearly 140 participants from 15 Latin American countries have been trained, and an additional 120 will be trained by the spring of 1991. Similar initiatives have been put forward in Southeast Asia and in Madagascar and other parts of Africa. In-country training programs will be expanded in the American tropics and will be started in the African and Asian tropics by the end of 1992.

The SI/MAB program has experienced substantial success and cooperation because it responds to the concerns and needs of the countries with which it collaborates and because it has the support of many international organizations. The UNESCO Man and the Biosphere Program, the U.S. Agency for International Development, the World Wildlife Fund, the World Heritage Program, and other international and host-country organizations have cosponsored SI/MAB activities.

The Smithsonian views the program as an important opportunity to produce an educational multiplier effect involving a large number of potential collaborators who are—or will be—the decision makers in their countries.

Office of Environmental Awareness

In response to the wave of public interest in environmental issues during preparations for Earth Day 1990, the Smithsonian Institution established the Office of Environmental Awareness in April. The office is dedicated to increasing public awareness and understanding of environmental issues. Office of Environmental Awareness staff work with experts within and outside the Smithsonian to disseminate information through exhibitions, publications, workshops, and public programs.

The office's first publication—the poster "A Better World Starts at Home"—offers suggestions for running an environmentally responsible household. Designed to fit on a refrigerator and distributed free, the poster was featured in a number of publications, including *USA Today*. Nearly 20,000 copies were distributed in the first five months; about 2,000 requests came from individuals in 47 states and several foreign countries.

The Arts and Humanities Division of the Rockefeller Foundation contracted with the Office of Environmental Awareness to conduct a study of current environmental activities in American museums, zoos, botanic gardens, and aquariums. With the aid of the Association of Science-Technology Centers, the office polled more than 160 institutions. The report will be published to make the information available to the American museum community.

In cooperation with Island Press and the *Los Angeles Times*, the office carried out planning for a two-day workshop for journalists in Los Angeles on October 5 and 6, 1990. It is the pilot program in a series of regional workshops to promote thoughtful media coverage of environmental issues.

The office plans to make oceans and marine-related issues the focus of its first educational campaign. A major symposium to be held in the fall of 1991 and a symposium volume, exhibition, and other related programs are the subjects of long-term planning.

Joseph Henry Papers

During 1990, the Joseph Henry Papers achieved one of its primary objectives for the last five years: the improvement and reautomation of the index to Joseph Henry documents. Inaugurated 20 years ago when the Henry Papers project began, the computerized index is the main point of access to some 60,000 documents by, to, or about Joseph Henry (1797–1878), premier American scientist and the first secretary of the Smithsonian Institution.

The index is indispensable to research on the documents for the selective letterpress edition of the Henry Papers, and it will become the basis for the guide to the complete microform edition. In addition, scholars in the history of American science, the history of the physical sciences, and American history regularly rely on the index to locate manuscript material pertinent to their research.

The original computer system could no longer meet the project's demands for speed in entering new material and editing and retrieving existing entries. The new system, which runs on the project's local area network and is consulted through personal computers, is self-contained within the Henry Papers and offers almost instantaneous on-line response to various types of inquiry. This system will greatly facilitate the editing of the letterpress edition and ease the task of indexing the remaining Henry documents. The new document index program has already allowed the project to respond more quickly and completely to information requests.

The Joseph Henry Papers supplied research assistance to a number of other Smithsonian bureaus and offices, including the National Museum of American History, the Smithsonian Institution Archives, the Office of Architectural History and Historic Preservation, and the National Science Resources Center. Other users of the Joseph Henry Papers resources ranged from a junior high school student preparing a project on Joseph Henry for National History Day to a representative from the Alexander-von-Humboldt-Forschungsstelle in Berlin interested in American-German scientific interaction during the nineteenth century.

Staff of the Joseph Henry Papers complemented their work on the life of Henry with research on other aspects of nineteenth-century science. Paul Theerman presented a paper on James David Forbes's biographical approach to the history of science at the annual meeting of the History of Science Society. The paper was

given at a session on science biography, which Theerman also organized. Marc Rothenberg, director of the Joseph Henry Papers, spoke at the same meeting on the relationship between the Smithsonian and the federal government during the antebellum period.

National Zoological Park

The National Zoological Park entered its second century in 1990 with a greatly strengthened emphasis on education. An increase in scientific literacy among the public is urgently needed to combat the worldwide degradation of environmental quality and loss of biodiversity. With its collections of animals and plants, its trained professional staff, and its membership in the Smithsonian family, the Zoo has a unique capacity to educate more than 3 million visitors annually. The Zoo's continued transformation to a biological park, or biopark, expands its educational message beyond living animals. Visitors are introduced to the intricacy of relationships between plants and animals by learning about pollination and seed dispersal, between past and present by observing the commonalities of large dinosaurs and elephants, between invertebrates and vertebrates by noticing the superficially similar eyes of cuttlefish and humans, and between animals and culture by seeing examples of animals in art. Physics, chemistry, and mathematics are incorporated into biological messages as visitors learn about the mechanics of flight, the fundamentals of nutrition, and the measurement of body mass. The vital work of the Zoo's scientists is itself exhibited: A group of golden lion tamarins living free in an urban park highlights staff efforts to reintroduce zoo-born tamarins to the wild in Brazil.

Modernization

Construction continues on the exhibit "Aquatic Amazonia," a major new development in tropical biology and conservation education. The first phase, scheduled to open in 1992, re-creates the edge of a tropical river, immersing the visitor in a moist, teeming forest. Heat, humidity, and a medley of sound and movement will contrast with cool, quiet underwater views of fish and caiman. The forest will prepare the visitor to enter an adjacent gallery, a new kind of zoo experience that will focus on the intricate details of the complex and endangered tropical forest ecosystem. The gallery will also feature the work of Smithsonian scientists in tropical biology, showing how they wrest secrets from nature and how valuable their research is. It will also provide a continuously updated multimedia briefing on global environmental events.

In the summer of 1990, final touches were added to

A mother serval rests with one of her three cubs born March 16, 1990, the first servals born at the National Zoo since 1970. (Photograph by Jessie Cohen)

Olmsted Walk, the Zoo's main thoroughfare. Zoo gardeners planted thousands of flowering plants, shrubs, and trees for beauty and shade. Plants were chosen to illustrate the biological significance of interaction between flowers and pollinators and fruits and fruit-eaters. Zoo craftspeople built a system of attractive railings along the length of the walkway to protect maturing plants. Two large restrooms on Olmsted Walk were renovated to enhance comfort, utility, and access for disabled visitors.

Other improvements included the restoration of a large yard for Asian one-horned rhinoceros. Adding plants to the enclosure of a voracious plant eater was a challenge to gardeners and keepers, but the rhinos enjoy the more naturalistic setting in which they now appear. In the Zoo's pioneering large outdoor flight cage, the deteriorating mesh dome was replaced, the metal support structure was repainted, and the interior was newly landscaped. The renovated exhibit will be a new multispecies experience embodying the themes of the biopark. The Australia Pavilion's roof, which also serves as an overlook, was replaced. Wallabies, gray kangaroos, and emus (large flightless birds) were added in replanted yards below. Inside the pavilion, the new 2,500-gallon Great Barrier Reef tank provides a glimpse of the intricate coral ecosystem.

Lighting was added to parking lots and walkways to provide additional safety for winter visitors and evening lecture- and concertgoers. Fire alarm systems were upgraded in several major animal buildings. Entrance doors were replaced on the Education Building and the Monkey House for greater security and easier access for mobility-impaired visitors.

Animal Programs

Servals are small cats of the African savanna with notably large ears adapted to detecting rodent prey in dense grass. The first serval breeding in a North American zoo took place at the National Zoo in 1961. But none have bred at the Zoo since 1967, and there has been little reproduction in other zoos. Curator John Seidensticker recently naturalized the outdoor serval enclosure with clumps of long grasses. The resultant seclusion may have contributed to the birth and successful mother-rearing of three serval kittens in March.

This year, the Zoo also acquired a male Sumatran tiger from the Djakarta Zoo. Sumatran tigers are an endangered subspecies and one of the 60 species whose propagation and study are coordinated cooperatively by North American zoos in Species Survival Plans (SSPs). The Djakarta male, which represents a valuable new genetic lineage, was entrusted by the tiger SSP to the Zoo because of its proven expertise in cat reproduction. The male is being introduced patiently to a potential mate. The tigers are showing friendly interest in each other, so keepers are optimistic that they will be compatible and reproduce.

Bringing cats from Djakarta to Washington is difficult and may not always be possible. Moreover, some cats may be incompatible and may never breed. The Zoo's reproductive physiology program under David Wildt is pioneering new techniques for artificial reproduction in cats. Using methods painstakingly developed with domestic cats, Wildt's lab recently succeeded in the first in vitro fertilization of tigers. In a process commonly known as test-tube fertilization, eggs were removed from a lightly anesthetized female and mixed with the semen from a male. The developing embryos were then placed in a different female, and cubs were born after a normal pregnancy. Placing the embryos in another female is a useful step when the genetic mother is for some reason unable to bear or raise young normally. Bringing the semen from a distant zoo would have required much less effort than transporting the male tiger. New freezing techniques may make it possible to use eggs and sperm even after the death of donors. These measures may also be valuable in the conservation of wild mammals. Inbreeding increases as wildlife reserves become more fragmented by human encroachment, but genetic diversity can be increased by using semen from a male in one reserve to fertilize eggs of a female in another.

Reintroduction

Sixteen black-footed ferrets were born this year at the Zoo's Conservation and Research Center in Front Royal, Virginia; 12 survived. Black-footed ferrets are extinct in the wild, but the captive population, managed by the Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service, has grown from 15

to more than 200. Jon Ballou, the Zoo's population manager, has been selecting the mating pairs that will best maintain genetic variability. Assistant Director for Animal Health Mitchell Bush, David Wildt, and Research Associate JoGayle Howard have been working with individual ferrets that have failed to reproduce. They have also developed measures to pinpoint the occurrence of ovulation and thus time the introduction of males to females for mating.

If the captive population continues to grow, black-footed ferrets will be reintroduced to the wild in 1991. Brian Miller, a postdoctoral fellow at the Conservation and Research Center, is conducting research to guide the reintroduction. To avoid any harm to the black-footed ferrets or any interruption in their breeding, Miller is using the closely related Siberian polecat as a surrogate. He is studying how zoo-born polecats recognize and avoid predators and how they learn to hunt prairie dogs. Polecats that had been trained to avoid a mechanized stuffed badger were killed by predators shortly after a trial reintroduction last year. Miller continues to seek the right kinds of experience and timing that will enable polecats, and later black-footed ferrets, to survive in the wild. The polecats were also used to solve a pest problem at the Zoo this year. When rats invaded the prairie dog exhibit, two of Miller's polecats were turned loose to rid the burrow network of rats and prepare it for the return of prairie dogs.

Curator of Birds Scott Derrickson heads the Zoo's participation in the U.S. breeding and reintroduction program for the Guam rail, another species extinct in the wild. The brown tree snake, accidentally brought to Guam, decimated the rails and other bird species not adapted to predatory snakes. Ornithologist Eugene Morton rescued the last rails from Guam in the 1980s, and several zoos have cooperated to build a captive population. In January and February, zoo-born rails were released on Rota, a snake-free island near Guam.

Medical issues are becoming prominent in the reintroduction of golden lion tamarins. Assistant Director for Research Devra Kleiman has directed the U.S. program for this species since the late 1970s. The cooperative breeding program has seen the captive population grow to more than 550. Jon Ballou orchestrates the pairings for genetic health. Benjamin Beck, associate director for biological programs, has reintroduced more than 80 zoo-born tamarins to Brazil since 1984. About 40 percent of the reintroduced tamarins survive, and 21 offspring have been born to them. All tamarins bound for Brazil are quarantined at the Zoo, where endoparasitism and other minor illnesses are successfully treated. But Mitchell Bush and Zoo pathologist Richard Montali have recently shown that a thinning of the diaphragm (the membrane in the chest that facilitates breathing) is more common and more extreme in tamarins than scientists previously thought. Since the tamarins do not seem adversely affected by this condition, Bush and Montali question whether the thinning is a real defect or simply an unusual feature typical of the species. When Bush examined about 50 of the 400 wild tamarins surviving in Brazil, he found thinning, but it was not as frequent or as extreme as in zoo tamarins. He will return to Brazil this year to reexamine reintroduced, zoo-born tamarins to test the unlikely possibility that the diaphragm will thicken with the physical activity demanded by life in the wild. A more likely possibility is that extreme thinning is a genetic defect. Until more is known, reintroduced tamarins must be screened carefully to prevent introduction of a potentially deleterious gene into the already fragile wild population.

Education

With each zoo birth, scientific breakthrough, or successful reintroduction, it becomes clearer that the crucial gains in conservation will derive from education. The threat to biodiversity stems from an expanding human population and from pressures for a greatly increased standard of living that consumes growing amounts of natural resources. This problem does not just exist in the "developing world." The deterioration of the Chesapeake Bay ecosystem and the recent extinction of the California condor and the black-footed ferret are reminders that environmental degradation occurs in our country, too. National Zoo visitors are thus a prime target audience for conservation information.

Education at the Zoo takes many forms. Volunteer teachers in the exhibit "Quick Stop" use feathers and eggs to engage visitors in the Bird House. Demonstrations throughout the Zoo feature elephants, seals and sea lions, a hawk, and an octopus, exploiting the public's fascination with animals to good effect. A micro-

scope equipped with a video camera allows visitors to explore a drop of water and delight in the microscopic world of beautiful and fast-moving plants and animals.

Plans for expanding the highly successful HERPLab are well advanced. This year, the Zoo introduced theater (*Young Charles Darwin*) and began informal participatory activities on animal locomotion, bat navigation, and elephant biology. Binoculars were provided for spontaneous close-up looks at especially interesting animal events. A musical comedy on dinosaurs ran in the Zoo auditorium in the summer months. New signs helped orient visitors to events and exhibits in the Zoo's 160 wooded acres. An orientation brochure and volunteers trained in sign language helped impaired visitors learn about and enjoy the Zoo's collections.

Kenneth C. Jackson, Jr., dressed as a *Styracosaurus*, entertained and taught children young and old in Dinamation's show, "Dinosaurs, Dinosaurs . . . A Mesozoic Musical," in the National Zoo's auditorium. (Photograph by Jessie Cohen)

Zoo educators collaborating with staff of the Friends of the National Zoo (FONZ) served thousands of schoolchildren and their teachers with special school programs, educational materials, and training workshops. The Zoo, the National Museum of Natural History, and the National Portrait Gallery collaborated on "Bison, Butterflies, and Naturalists," a conservation program for junior high school students. The program culminated in a conservation summit at the Zoo, during which 200 students shared the successes of their community conservation projects.

Media efforts reached wider audiences. The "Smithsonian World" program "Zoo," filmed entirely at the National Zoo, provided a frank and intimate view of the emotional and intellectual challenges of modern zoo work. "Keepers of Eden," a program in the "Infinite Voyage" series, looked at the vital role played by zoos in conservation and featured the Zoo's reproductive physiology and reintroduction programs. FONZ produced and distributed "10 Ways You Can Help Your Habitat," a brochure with practical conservation tips for the urban American. FONZ's educational magazine *ZooGoer* published a special issue on rainforest ecology and conservation.

Rasanayagam Rudran's Wildlife Conservation and Management Program involved 60 participants from 25 countries in intensive courses in environmental management. Christen Wemmer, associate director for conservation, organized the Zoo Biology Training Course for 50 midlevel zoo employees in China and Indonesia.

Friends of the National Zoo

A nonprofit organization with more than 55,000 members, FONZ contributes in many ways to the Zoo's accomplishments. A record 750 FONZ volunteers worked 67,000 hours, narrating demonstrations, collecting behavioral research data, harvesting plants for the elephants, apes, and monkeys to eat, serving as in-

formation guides and learning lab teachers, planting flowers, and providing clerical assistance.

FONZ's major fund-raising effort, National ZooFari, took the Amazon rainforest as its theme and raised $105,000 for the Theodore H. Reed Fund. FONZ's food, merchandising, and parking concessions provided $550,000 for Zoo education and research programs and $526,900 in contract fees to the Smithsonian Institution.

FONZ expanded its recycling program to include office paper and aluminum. Paper bags and recycled paper products are offered in the gift shops and the bookstore, and packaging, especially plastics, is being minimized in food service. In 1990, FONZ switched to recycled paper for its stationery and for much of its other printed material.

Office of American Studies

Since its founding in 1967, the program in graduate education sponsored by the Office of American Studies has encouraged research in the field of material culture, utilizing the collections and personnel of the Smithsonian Institution's many museums. An additional purpose was to overcome the separation then existing between university and museum scholars. Through formal courses conducted at the Institution, graduate students from cooperating universities are encouraged to take advantage of the opportunities offered by the national museums. Courses have covered art, technology, and social, cultural, and political history. The research interests of participating students have ranged from art to anthropology.

The 1989 fall semester seminar, "Material Aspects of American Civilization," focused on material culture and the environment. The seminar was taught by Wilcomb E. Washburn, director of the program, and Bernard Mergen of George Washington University. Twelve students participated—10 from George Washington University and 2 from the University of Maryland.

Other seminars taught during the past year included "The Decorative Arts in America," taught by Barbara G. Carson of George Washington University, and "Technology, Labor, and American Society," taught by Gary Kulik of the Smithsonian Institution. Thirty-three students participated in these seminars.

Office of Fellowships and Grants

The Smithsonian Institution offers scholars and students unparalleled opportunities to conduct research in subjects ranging from original works of art to historical and anthropological objects, from complex ecosystems on Earth to distant galaxies. To help researchers take advantage of these vast resources, the Smithsonian has developed research support programs that enable researchers of art, history, and science from the United States and abroad to use the Institution's facilities in conjunction with staff members. The Office of Fellowships and Grants (OFG) administers these programs and serves as an institutional link with scholars throughout the world. In 1990, nearly 950 undergraduate and graduate students and scholars received awards administered by OFG. These awards included both long- and short-term residential appointments.

Programs for Visiting Students and Scholars

The office awarded 93 predoctoral, postdoctoral, and senior postdoctoral Smithsonian Fellowships in 1990. Twenty-four of these awards went to foreign students and scholars from 17 countries. This year marked the 25th anniversary of the program, which enables participants to conduct independent studies under the guidance of staff. Research is carried out in the Institution's bureaus or at field sites, usually for a period of 6 to 12 months. Topics included gender and activity patterns in prehistoric populations of the Northern Plains, the significance of leaf arrangement in tropical trees, African American seamen in the Atlantic World from 1750 to 1885, bright coloration and status signaling in female warblers, and the representation of domestic servants in nineteenth-century American painting.

Twenty-five U.S. and four foreign graduate students in the early stages of their graduate training received 10-week fellowships in 1990. These awards allow students to explore areas as potential subjects for dissertation or thesis research. This year, fellows studied such topics as golden lion tamarin behavior in two zoo habitats, African American artists in Paris from 1922 to 1932, and mineralogy of Mexican shield volcanoes and cinder cones.

Four Smithsonian Institution Regents Fellows—all distinguished scholars—were in residence in 1990. Jack Goody of St. John's College, Cambridge, examined differences in social organization and patterns of cognition in comparative and historical perspectives at the National Museum of Natural History. Michael Kammen of Cornell University worked at the National Portrait Gallery on American culture since 1870, emphasizing the increasing role of tradition and social memory in a society with a democratic ethos. Malcolm Longair of the Royal Observatory and University of Edinburgh conducted research at the Smithsonian Astrophysical Observatory on topics including theoretical astrophysics, cosmology, and extragalactic X-ray sources, and infrared, submillimeter, and radio astronomy. Robert Ricklefs of the University of Pennsylvania began his research at the Smithsonian Tropical Research Institute on the ecological and evolutionary interpretations of the life history of birds.

The Faculty Fellowship Program encourages minority faculty members to conduct research at the Institution for two- to four-month periods. In 1990, two awards were granted. Glenda Gill's research at the National Portrait Gallery focused on the factor of class in the career of Ethel Waters, and Marcia Battle studied America's post–World War II minority photographers at the National Museum of American Art.

The postdoctoral fellowship program in molecular evolution and plant physiology entered its second year in 1990. A two-year award enabled Thomas Parsons to conduct research on the molecular phylogeny of the extinct birds at the National Museum of Natural History.

The office developed a new fellowship program to promote research cooperation in selected studies of botany between Smithsonian scientists and their university colleagues. Funded by the Andrew W. Mellon Foundation, the program encourages work between teams of junior and senior scientists and fosters closer ties between Smithsonian research programs and those of other institutions. One award was made this year to conduct research on the ecological relationships of the Brazil nut family (*Lecythidaceae*) at the National Museum of Natural History. Two awards were offered to fellows at the Smithsonian Tropical Research Institute who studied the causes of genetic structure in tropical tree populations and the hydraulic architecture and vulnerability of xylem to cavitation events in evergreen and deciduous tropical trees.

In addition to the Institution-wide programs, the OFG administers fellowships and other awards sup-

ported with funds from bureau sources. At the National Air and Space Museum, 1990 awards included appointments to the Daniel and Florence Guggenheim, A. Verville, and International fellowships. Two fellowships were awarded under the James Renwick Fellowship Program in American Crafts, which encourages research in the history of twentieth-century American art, craft, or design. In addition, the Smithsonian Astrophysical Observatory offered four postdoctoral and seven predoctoral fellowships. The OFG administered 135 awards with bureau funding for visitors to come to the Institution for varying periods.

Seven postgraduate internships for research and training in subjects ranging from art conservation to paper conservation were awarded by the Conservation Analytical Laboratory (CAL). These interns were in residence at CAL, the Cooper-Hewitt National Museum of Design, the National Museum of American Art, the National Museum of African Art, the National Museum of American History, and the National Museum of Natural History.

OFG continued to sponsor its popular Short-Term Visitor Program, which allows scholars to conduct research at the Institution and to collaborate and interact with Smithsonian staff. In 1990, the program provided 142 short-term travel grants, including 97 to international visitors from 31 countries.

The successful OFG workshop program again supported groups of scholars in research, education, and museological fields to discuss issues of mutual or complementary interest. Last year, 13 workshops were organized by Smithsonian staff members. The topics included Uto-Aztecan religion and cosmology; the construction of the ancient Near East; the history of science, technology, and medicine in the Western Hemisphere and the Iberian Peninsula; the utility of controlled feeding experiments in interpreting stable isotope values; and digestive strategies of animals.

Internships and Other Programs

Internships are often an integral part of college and university undergraduate and graduate programs because they provide valuable learning experiences. The Office of Fellowships and Grants administers all internship appointments at the Institution that are supported with stipends. In 1990, these included 22 at the National Air and Space Museum, 4 at the National Museum of American Art, and 14 in the Smithsonian Environmental Research Center's work-learn program. The Departments of Botany and Vertebrate Zoology at the National Museum of Natural History supported 31 interns. Fifty-two interns received stipends with funding from other bureaus.

Nine students participated in the Smith College–Smithsonian Program in American Studies. This program offers a seminar course and research projects conducted under the supervision of staff members.

High school students took advantage of the Institution's internship opportunities through programs offered by the Office of Elementary and Secondary Education. Forty-three students participated in five-week sessions at the Smithsonian designed to broaden an existing academic or vocational skill.

Applications increased this year for OFG's internships aimed at increasing the participation of minorities in Smithsonian research activities and fields of interest. Forty-two undergraduate and graduate students from across the country came to work at a variety of bureaus and offices. Research topics included a study of stress in large cats and bears at the National Zoological Park, the design of aspects of the Smithsonian's new Experimental Gallery, research for the Duke Ellington Collection at the National Museum of American History, and a study of relations between African Americans and Native Americans at the National Museum of American History.

During the past year, OFG continued a program for Native American students and scholars to utilize Native American collections at the Institution. Under this program, 19 awards were made.

One student received an appointment through the Cooperative Education Program, which is aimed at minority graduate students whose research interests coincide with those of the Institution. Students in this program work in professional research-related jobs at the Smithsonian while continuing their university educations. The appointments hold the potential for permanent employment at the Smithsonian.

The Education Fellowship Program also is intended to encourage the participation of minority students in the Institution's fields of interest by offering support for graduate study and research training. One fellow

completed his master's degree in anthropology at the University of Massachusetts and is continuing his fellowship by working on his doctoral degree at the University of Florida.

The Webb Fellowship Program, named in honor of Regent Emeritus James E. Webb, promotes excellence in the management of cultural and scientific nonprofit organizations. This year, three professional staff members from the Smithsonian received fellowships to enhance their administrative abilities. The recipients came from the Smithsonian Tropical Research Institute, the National Museum of American Art, and the Smithsonian National Associate Program.

The Scholarly Studies Program makes competitive grants for research by Smithsonian staff and outside collaborators that does not fall within the purview of traditional funding sources. A review committee of scholars from outside the Institution met twice in 1990 and awarded 39 one- and two-year grants.

The Research Resources Program supports archival projects that arrange, describe, preserve, and make more widely available to the public selected archival materials and document collections of major importance to research. In 1990, a review committee of archivists from outside the Institution recommended that 11 grants be awarded.

Office of Interdisciplinary Studies

The Office of Interdisciplinary Studies (OIS) found a new administrative home in the Office of the Assistant Secretary for Research, where its scholarly and educational programs are being pursued with fresh purpose and direction. Director Wilton S. Dillon assumed new responsibilities as a senior scholar in residence in the Office of the Assistant Secretary for Research.

International Symposia Series

The Smithsonian's 10th international symposium took place October 25–28, 1989, in Charlottesville, Virginia, and Washington, D.C. "Les Droits de l'Homme and Scientific Progress," cosponsored by the National Academy of Sciences, commemorated the bicentennial of the French Revolution, the U.S. Bill of Rights, and the French Declaration of the Rights of Man and of the Citizen. Nearly 50 essayists and commentators from the United States and France reexamined the ideas and institutions of the eighteenth-century Enlightenment; its influence on science, education, and human rights; and the relationship in contemporary life between science and human rights. The University of Virginia and the Virginia Commission on the Bicentennial of the U.S. Constitution were pivotal in organizing the symposium.

Few programs in the international series have received as much praise from participants. Many of them had never met or shared their common concerns on issues of science and human rights; they have made plans to gather again in Paris to continue their dialogue and collaboration. Another consequence of the symposium is a plan to convene a sequel, "Human Rights and Social Change," at the Hungarian Academy of Sciences, Budapest, in April 1991 under the sponsorship of the Friends of Raoul Wallenberg Foundation.

Wilton Dillon, director of "Les Droits de l'Homme and Scientific Progress," is editing the symposium volume with Craig A. Reynolds for publication in the United States and France. A comprehensive symposium summary is available upon request.

World Food and Agriculture Series

The Smithsonian served as host in October to the third annual presentation of the World Food Prize, the fore-

Participants taking a break at the international symposium, "Les Droits de l'Homme and Scientific Progress," at the National Academy of Sciences, included (left to right): Frank Press, president, NAS; Charles McC. Mathias, chairman, American Committee on the French Revolution; and Wilton S. Dillon, symposium director. In the background is principal adviser Walter A. Rosenblith, Massachusetts Institute of Technology.

most international prize recognizing an individual's achievements leading to significant improvements in the quantity, quality, and availability of food in the world. Verghese Kurien, chairman of the National Dairy Development Board of India, was the 1989 prize laureate. Kurien has built and managed the world's largest agricultural development program, a cooperative-based industry of milk and dairy products that serves more than 170 million consumers. In conjunction with the award ceremonies, OIS organized an international colloquium titled "Sharing Innovation: Global Perspectives on Food, Agriculture, and Rural Development." Speakers from India, the People's Republic of China, Indonesia, Nigeria, and Chile discussed a variety of cutting-edge issues in food and agriculture: rainfed agricultural technologies; integrated, community-based farming systems in Africa; the role of agricultural science and research in spurring rice production in Indonesia; China's adoption of market prices and other agricultural reforms; and the development of Chile's highly successful export industry in fruits and vegetables.

Intramural Seminars

"Ways of Knowing," begun in 1987 to offer Smithsonian staff a forum to probe broad questions of philosophical interest that also have practical implications for the Institution's work, meets quarterly. The May 14 gathering focused on the meanings of health and illness as affected by culture and gender; "Exploring Large Questions in Small Places," held on July 12, investigated the relations between the broad and the particular in the context of acquiring and interpreting knowledge in the sciences, social sciences, and humanities.

To further foster the generation and communication of new ideas—OIS's stock-in-trade—and to promote integration among individuals and programmatic units in a large and diverse organizational structure, OIS initiated two seminar series in the fall of 1990. "Research at the Smithsonian" is designed to expand exchange among scholars in all Smithsonian research centers and to explore research itself from a variety of disciplinary perspectives. Another bimonthly series will address cultural diversity—an often-heard term and a high Smithsonian priority that needs clarification and discussion.

Curriculum Materials

The office's first educational video for high schools, "Democracy and Rights: One Citizen's Challenge," won several awards for its portrayal of an individual's struggle for the right to equal educational opportunity. A second video titled "Citizen Stories" is in production; it examines the reciprocal relationship of rights and responsibilities in American democracy. Citizen participation, responsibility, and service are illustrated

through four case studies of young Americans who have taken the initiative to improve the well-being of their communities. Produced jointly with the Close Up Foundation, both videos have adapted scholarly materials generated at OIS's 1987 international symposium, "Constitutional Roots, Rights, and Responsibilities."

On July 26, 1990, OIS convened a workshop at the National Air and Space Museum to introduce science educators to a variety of models for space science instruction and curricula in elementary and middle schools. One model that was demonstrated, "The Cultures of the Imagination" (COTI jr.), has been tested in several Fairfax County, Virginia, public schools. Jeffrey Goldstein, an astrophysicist at the museum, spoke about the scale of time and space in the universe and gave the educators a range of concepts and methodologies for adopting space science in the classroom. Sixty science teachers, curriculum specialists, and scientists from the National Science Foundation, the National Science Teachers Association, and the Smithsonian focused productively on the value of space science in motivating young people to study science and math.

Publications

A fundamental component of OIS's function is to disseminate the findings of its intellectual and scholarly investigations to a wide audience. The office's programs are the source of 15 books and several special issues of journals to date. Published this year were *Sharing Innovation: Global Perspectives on Food, Agriculture, and Rural Development*, edited by Neil G. Kotler, and *Governing a Changing Society: Constitutionalism and the Challenges of New Technology*, edited by Robert S. Peck. *Man and Beast Revisited*, edited by Michael H. Robinson and Lionel Tiger, is in press; the manuscript for *Constitutional Roots, Rights, and Responsibilities*, edited by A. E. Dick Howard, has been completed. *Contemporary Indian Tradition*, edited by Carla M. Borden of OIS, was copublished by Oxford University Press in New Delhi and has been reviewed in many journals and newspapers.

To propagate information not only on OIS's activities but on interdisciplinary programs elsewhere at the Institution and to spark curiosity about current questions facing scholars and administrators, OIS now issues a newsletter twice a year.

Smithsonian Astrophysical Observatory

A century ago this year, Samuel Pierpont Langley—physicist, aeronautical pioneer, scientific visionary, and the Institution's third secretary—founded the Smithsonian Astrophysical Observatory (SAO) for studies of what he called "the new astronomy." Langley's primary interest was the Sun, but his persistent probing of the complex interrelationship of solar and terrestrial phenomena was the basis for modern astrophysics.

Today, the unusual observatory he established in a modest wooden structure behind the Castle on the National Mall has evolved into a multidisciplinary research center headquartered in Cambridge, Massachusetts, and is internationally recognized as a leader in astronomy, astrophysics, and the space sciences.

In partnership with the Harvard College Observatory, SAO now forms the Center for Astrophysics, which is organized by divisions representing the diverse interests of its joint scientific staff: atomic and molecular physics, high-energy astrophysics, optical and infrared astronomy, planetary sciences, radio and geoastronomy, solar and stellar physics, and theoretical astrophysics. The Institute for Theoretical Atomic and Molecular Physics, located at the center, annually hosts some 50 visiting scientists and graduate students who work and study with SAO staff members. The Central Telegram Bureau and the Minor Planet Center operated for the International Astronomical Union provide rapid dissemination of astronomical discoveries for the entire world. SAO also participates in Project STAR, a curriculum development program designed to improve the teaching of secondary school science and mathematics through examples from astronomy. In addition to developing and testing educational materials, STAR holds summer training institutes for secondary school teachers.

Data-gathering facilities include the Fred Lawrence Whipple Observatory in Arizona, site of the Multiple Mirror Telescope operated jointly with the University of Arizona; the Oak Ridge Observatory in Massachusetts; the George R. Agassiz Radio Astronomy Station in Texas; and a millimeter-wave radio astronomy facility in Cambridge. SAO scientists also have access to ground-based facilities elsewhere, and they conduct satellite, rocket, and balloon experiments.

Tradition, Continuity, and Imagination

Despite its extraordinary growth and diversification in the past century, SAO remains faithful to Langley's original vision: to understand the physical processes that determine the nature and evolution of the universe. In fact, the eclectic and multifaceted Langley probably would be delighted by the scope and variety of SAO's current research, as exemplified by the following selected results from the past year.

The largest single coherent structure ever seen in nature—a "great wall" of galaxies stretching more than a half-billion light-years over space—was identified by two SAO astronomers as part of their long-term project to construct a three-dimensional map of the universe based on galactic redshifts. (One of those researchers was awarded a coveted John D. and Catherine T. MacArthur Foundation "genius grant" fellowship for her contributions to this effort.)

Two other SAO scientists made the first astronomical detection of submillimeter-wave radiation from "hot" water masers in star-forming regions of our galaxy; the temperature of this water vapor is nearly 2,000° K. Made with the Caltech Submillimeter Observatory on Mauna Kea in Hawaii, these observations of "hot" water bode well for SAO's proposed high-angular-resolution investigations of star-forming regions.

Radar images of a small Earth-approaching asteroid obtained by SAO scientists and colleagues at the Jet Propulsion Laboratory in Pasadena, California, and the Arecibo Observatory in Arecibo, Puerto Rico, show it to be dumbbell-shaped, perhaps resulting from the collision of two separate objects, each about one-half mile long. The images, the first to provide direct evidence for a strongly bifurcated distribution of mass in such objects, were obtained with the 1,000-foot-diameter radar telescope at Arecibo in 1989 when this asteroid passed within 4 million miles of Earth.

A Delta rocket carrying *Roentgensatellit* (ROSAT), a joint project of the Federal Republic of Germany, the United Kingdom, and the United States, soared into space at 5:48 P.M. EDT on June 1, 1990, from Cape Canaveral, Florida. The largest X-ray telescope ever flown, ROSAT is equipped with a High Resolution Imager built by SAO to provide clear pictures of cosmic X-ray sources. The ROSAT mission, which will last more than 18 months, will first map the entire sky in X-rays and then make a detailed study of selected objects. ROSAT's sensitivity is several times greater than that of the Einstein (HEAO-2) Observatory launched in 1978 and designed in part by SAO scientists. Test images taken in early July, including one of the compact binary source Cygnus X-2 and several supernova remnants, proved letter-perfect. SAO also operates one of two U.S. data analysis centers for ROSAT.

Using a special 10-meter-diameter Cherenkov light detector at the Whipple Observatory, a team of SAO astronomers conclusively identified the Crab Nebula as the strongest source of cosmic gamma-rays. The detection thus establishes that object—a star that exploded 900 years ago—as a benchmark for pinpointing other sources of the universe's most energetic radiation.

The successful flight in June of a balloon-borne far-infrared spectrometer made additional measurements of the molecular constituents of the Earth's upper atmosphere. As part of a continuing effort to understand the complex interaction between solar radiation and atmospheric particles and its effect on global change, this research represents a modern extension of one of Langley's most cherished scientific goals.

Innovation, Invention, and Instrumentation

Among the many other institutional philosophies Langley established was a willingness to experiment with new technologies and innovative procedures intended to expand the frontiers of science. Langley himself made ventures into manned flight and invented several astronomical instruments, including the bolometer, which made possible the first observations at infrared wavelengths. A half-century later, another SAO director, Fred Whipple, inspired the creation of two innovative instruments: the Baker-Nunn camera, which provided optical tracking of early artificial satellites, and the Multiple Mirror Telescope, which revolutionized modern concepts of how to build large optical instruments. In the past two decades, SAO scientists have contributed to a host of new developments, including electronic detectors, computer-based data processing and analysis, X-ray space observatories, remote telescopic operations, atomic clocks, tethered satellite systems, and balloon-borne telescopes, as well as advanced

laboratory techniques for simulating basic atomic and molecular processes in space.

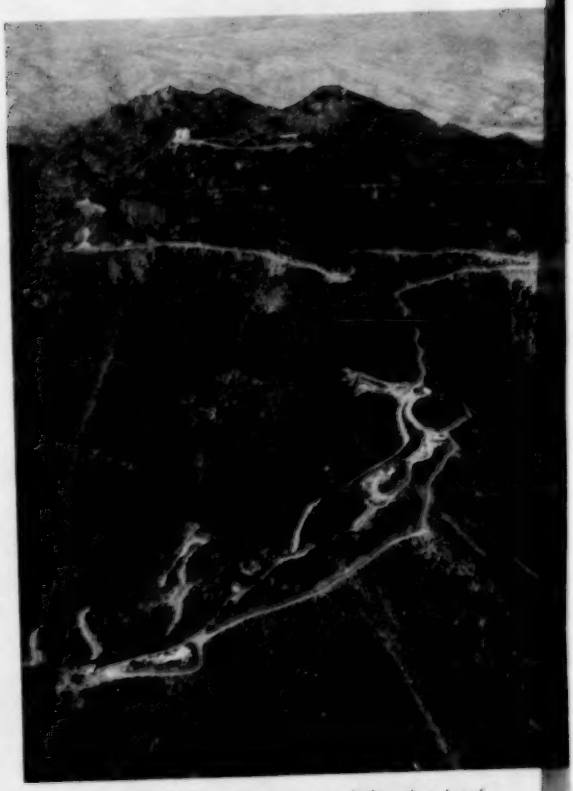
As SAO enters its second century, this spirit of invention, innovation, and imagination continues, with several major initiatives in the past year. A dozen SAO astronomers were selected as guest observers to use the Hubble Space Telescope (HST), the first in the National Aeronautics and Space Administration's (NASA's) series of "Great Observatories" planned for launch during this decade. (When problems developed with HST's optics, NASA sought advice from SAO specialists on image improvement using computer-enhancement techniques.) For the second project in this series—the Gamma-Ray Observatory (GRO) satellite—SAO will coordinate ground-based observations in support of the space studies. The lead instrument in this three-year international collaborative effort will be the 10-meter gamma-ray telescope operated at SAO's Whipple Observatory.

This year, SAO was awarded a $26.7 million contract from NASA to design and construct a High Resolution Camera for the Advanced X-Ray Astrophysics Facility (AXAF), now expected to be the third "Great Observatory." At the same time, SAO has embarked on an ambitious program to create innovative telescopes for ground-based use. For example, a 0.75-meter-diameter Automated Photoelectric Telescope installed at the Whipple Observatory took its "first light" on the evening of October 15–16, 1989, marking a milestone in the development of robotic observatories. The small, relatively inexpensive, and totally automatic telescope is the prototype for similar instruments in SAO's proposed world network devoted to long-term monitoring of cyclic celestial phenomena.

Also at the Whipple Observatory, plans for converting the six-element Multiple Mirror Telescope to an instrument with a single mirror 6.5 meters in diameter continued. Engineering designs were completed and the raw glass obtained in preparation for spin-casting this giant primary mirror in 1991.

SAO's major instrument for the future is the Submillimeter Wavelength Array, six submillimeter-wave telescopes designed to make high-resolution observations in the last band of the electromagnetic spectrum to be explored from Earth. This wavelength is ideal for observing a host of "cool" objects, ranging from comets to newborn stars, as well as for detecting nonthermal radiation from quasars. The potential for making unexpected discoveries and for gaining new insight into the nature of the universe is immense.

Appropriately, the sensitive detectors being designed for this array and intended to capture radiation in the band lying between infrared light and radio waves are direct descendants of the bolometer created by Samuel Pierpont Langley at the time of SAO's birth.



The Fred L. Whipple Observatory, principal observing site of the Smithsonian Astrophysical Laboratory, is located on Mt. Hopkins, Arizona, 35 miles south of Tucson. This aerial view to the north shows the Multiple Mirror Telescope at the upper left center, atop the 8,500-foot-high summit; other observing facilities are arrayed along a ridge 1,000 feet below. (Photograph courtesy of Whipple Observatory)

Smithsonian Environmental Research Center

Scientists at the Smithsonian Environmental Research Center (SERC) are on the cutting edge of studies contributing to a better understanding of complex environmental phenomena and problems, including many aspects of global environmental change. In Edgewater, Maryland, on 2,600 acres bordering the Rhode River, a tributary of the Chesapeake Bay, SERC researchers are conducting long-term interdisciplinary studies in the field and in the laboratory.

The center complements its research activities with educational programs for students—from undergraduates to postdoctoral fellows—and for the public. Teacher- and docent-led tours acquaint the public with the center's mission and facilities. Hikes along the two-mile Discovery Trail and center-organized canoe outings on the tidal river introduce visitors to the wonders and fragility of the coastal environment.

Through regular seminars, center researchers and their counterparts from universities and governmental laboratories keep each other abreast of work and issues in areas of mutual interest. In addition, the center organizes and hosts scientific workshops on a variety of topics.

The following examples of 1990 research activities show how SERC studies help to unravel the complex web of factors that influence the environment's well-being. Research is conducted by staff scientists, who represent diverse disciplines, and by visiting scientists and students.

Population Dynamics of Woodland Herbs

SERC scientists have been studying 34 populations of the cranefly orchid for 13 years at the Smithsonian's Edgewater research site. During this time, the total number of individual orchids has declined by 65 percent. Most of this decline is the result of high mortality in the larger populations; 12 of the original populations were completely lost. Through observations and experiments, scientists learned that increases in deer or rodent populations were responsible for decreases in cranefly orchid populations.

Declines in Migratory Birds

During the last 40 years, there have been well-documented severe decreases in the populations of many woodland birds in eastern North America. Most of these species are neotropical migrants that winter in the tropics and inhabit the eastern forests only during the breeding season. These species usually make up 65 to 85 percent of the individual breeding birds in these forests. The population declines seem to be largely due to forest fragmentation in both the breeding and the wintering grounds. In a few well-studied large, undisturbed forest tracts, breeding bird populations have increased significantly, but in the more common smaller forest fragments, the populations have fallen dramatically. In the breeding areas, this situation is attributed to the preference of many species for a forest interior habitat. These species do not nest or feed in forest edges.

Wintering migrant birds make up 40 to 50 percent of the individual birds in Mexico, the Bahamas, and the Greater Antilles. For some years, SERC scientists have been studying the effects of forest disturbance in the Yucatán Peninsula of Mexico on these wintering bird populations. Forty-two species of migrants are regularly found in the Yucatán. Most of these species prefer tropical forest for their wintering habitat. Although most species tend to avoid highly disturbed vegetation, none are restricted to mature tropical forest. Newer Mexican land use practices, such as mechanized row cropping and large-scale cattle ranching, are harmful to most species of migrants.

Forest Canopy Atmospheric Interactions

SERC is conducting global change research on the rates of exchange of gases between hardwood deciduous forests and the atmosphere. A 160-foot-high walk-up research tower is used as an instrument platform. The validity and generality of the research findings depend on a detailed understanding of the forest surrounding the instrument tower. The forest stand originated from forest regrowth on farmlands abandoned in the early 1800s. SERC scientists mapped, measured, and identified the trees within a 5,000-square-meter area around the tower. The stand is dominated by tulip poplar but includes 17 species of trees. Scientists characterized the

canopy with respect to leaf area, mass, and number for each of these species. Intensive studies already under way are investigating the entire adjacent forest area and its effects on the meteorological mixing rates between the forest and the atmosphere.

Greenhouse Effects on Tidal Marshes

SERC research on the effects of increasing concentrations of carbon dioxide in the atmosphere on brackish tidal marsh plant communities was extended this year. Experimental chambers have been enriched continuously with carbon dioxide for three growing seasons. Data from these enriched chambers are compared with control chambers and with control plots outside the chambers. The results help SERC scientists predict the effects of rising levels of atmospheric carbon dioxide, which cause the "greenhouse effect."

Previous results included large positive effects on above-ground growth, increased water-use efficiency, increased photosynthetic rates, and delayed dormancy in the fall. New results focus on below-ground effects. The biomass of tidal marsh plants is located predominantly in below-ground organs such as roots, rhizomes, and tubers. Elevated carbon dioxide caused an 83 percent increase in root mass in a sedge community. These roots also contained less nitrogen. However, elevated carbon dioxide had no effect on root mass or nitrogen content for a grass species, *Spartina patens*. Thus, the effects of elevated carbon dioxide are species specific. The large below-ground effects reinforce the significance of the previous above-ground findings. These plant communities will increase their mass and help reduce atmospheric concentrations of carbon dioxide as the atmospheric gas composition changes.

Dynamics of Cattails in a Chesapeake Bay Marsh

The narrow-leaved cattail, *Typha angustifolia*, occurs widely in the lower-salinity tidal marshes of the Chesapeake. SERC has conducted a long-term study of the effects of seasonal and interannual variations of salinity on the growth and resource allocation of this species. In a typical year, watershed discharges peak in late winter and spring, flushing most of the salt from these habitats. Then tidal action gradually increases the salinity during the summer and fall, placing physiological stress on the plants. During drought years or series of drought years, as in much of the 1980s, the salinity increases earlier and reaches higher maximum levels. During years of high salinity, flowering was reduced tenfold, shoot density by 50 percent, shoot height by 30 percent, and overall above-ground mass threefold. Roots and rhizomes were also restricted to shallower depths in high-salinity conditions.

In a field experiment, plots of cattail were manipulated to measure the effects of nutrient fertilization and recycling by litter decomposition. Peak above-ground plant mass was increased by nitrogen and phosphorus fertilization except in years of high salinity. Nutrient addition also increased flowering and increased the nitrogen and phosphorus content of the plant tissues. However, nutrient addition also resulted in higher infestations by shoot-boring moth larvae. Manipulations of the litter amount seemed to have effects attributable to the physical structure of the litter rather than its nutrient content. The decomposing litter takes up nutrients. Thus, those plots with increased litter removed more nutrients from the tidal water, but the nutrient content of the soils was unaffected.

Ultrasonic Telemetry of Blue Crab Ecology

SERC has been a pioneer in the development of underwater biotelemetry and its application in studies of the blue crab in the Chesapeake Bay. Since the bay is usually very turbid, free-ranging crab behavior is difficult to observe, even by scuba divers. A small, lightweight ultrasonic transmitter was developed that can operate on one set of batteries for up to eight weeks. The transmitter emits regularly recurring short pulses of sound for tracking and long pulses when triggered by crab activity. In some cases, the transmitters were triggered by the action potentials of crabs' jaw muscles. These muscles are used only when the crab is eating, so these signals, monitored on hydrophones, can be used to measure the number of bites needed to consume a food item. Number of bites and length of feeding time are both correlated with the size of the prey specimen. In one study, a crab was tracked continuously for 96 hours. It traveled more than 2 miles at an average

speed of 38 feet per hour but showed periods of rapid movement of up to 1,000 feet per hour. The crab fed 2 to 7 times per day, with feeding bouts consisting of 15 to 2,750 bites. No evidence was found for diurnal or tidal feeding cycles.

Telemetry was also used to measure crab habitat preference for molting. All crabs studied selected very shallow marsh-lined tidal creek banks for molting.

Smithsonian Institution Archives

The Smithsonian Institution Archives (SIA) accessions, preserves, and provides research service on permanently useful official records of the Institution. The Archives collects personal records of Smithsonian scholars, records of professional societies associated with the Smithsonian Institution, and audio and video recorded interviews with principal figures in the history and development of the Institution. The Archives staff provides professional outreach services to archives in Smithsonian offices and bureaus and to museum archivists throughout the United States.

Highlights of the Year

During the past year, the Archives accessioned about 700 cubic feet of records and other historical materials, bringing the total holdings to 16,000 cubic feet. Significant accessions included Hornblower and Marshall drawings for the Natural History Building and a set of competition drawings, including winning entries by Eliel and Eero Saarinen, for the Smithsonian Gallery of Art. The Oral History Collection now totals nearly 380 hours of tape recordings and 5,800 pages of transcript. Both audio and video interviewing concentrated on Smithsonian work in conservation of endangered species and the history of the National Zoological Park and the Smithsonian Tropical Research Institute.

The records center resumed full-scale operation after a three-year hiatus due to lack of space. More than 300 cubic feet of inactive records were received into the center pending disposal, while close to 300 cubic feet of records were destroyed according to authorized schedules.

In May 1990, a committee of archivists and historians from outside the Institution, appointed and charged by the assistant secretary for research, reviewed the operations of the Smithsonian Archives. The committee found the mission and the archival planning program to be sound and urged their more systematic implementation. Not surprisingly, the committee found the Archives' mission and objectives ambitious beyond available resources.

Other accomplishments during the year included the development of a formal records disposition plan for the Archives of American Art and a records survey of the Museum of the American Indian in New York. The

U.S. Department of Agriculture entomologist Eugene Amandus Schwarz, ca. 1915, empties a bag of insects onto a table for study at Plummer's Island, Maryland. This photograph was part of a collection of photographs of entomologists processed by the Archives this year.

Archives published a *Guide to the Papers of Alexander Wetmore*, sixth secretary of the Smithsonian Institution, written by William E. Cox, and volume 1 (National Museum of American History) of *Guide to Photographic Collections at the Smithsonian*, by Diane L. Vogt-O'Connor and the staff of the photographic collections survey project. Preservation and conservation activities included the conservation of 90 historic drawings of Smithsonian buildings and the photographic duplication onto mylar and retirement to the Archives of another 200 architectural drawings; the copying onto safety film of 2,000 nitrate negatives; and a survey of oversized materials that revealed some 38,000 items already in the Archives in need of preservation or conservation treatment.

Projects

The Smithsonian Videohistory Program, in its fourth year of experimental work under a grant from the Sloan Foundation, continued to support research work of Smithsonian historians. Projects included black aviation pioneers, robotics, the Manhattan Project, astronomical satellites, medical technology, the RAND Corporation, Soviet space medicine, chronometer manufacturing, and the technology of modern infantry weapons.

The photographic collections survey project sent volume 2, a guide to photographic collections in science bureaus, to press for publication next year and continued work on volume 3, devoted to art museums.

William A. Deiss provided archival support to the National Zoological Park for the centennial celebration in the fall of 1989. Alan L. Bain assumed responsibility for publishing and distributing *Museum Archivist*, the newsletter of the Museum Archives Section of the Society of American Archivists. Diane L. Vogt-O'Connor continued work with Richard Pearce-Moses of Arizona State University on a thesaurus of photographic terminology and wrote an introductory chapter to *Images of America*, a volume of photographs and text tracing the history of American photography published by Smithsonian Institution Press. Pamela M. Henson completed and successfully defended a doctoral dissertation on the work and influence of entomologist John Henry Comstock.

Research and Publications

Publications based in part on research in the Smithsonian Archives included Stephen Jay Gould's *Wonderful Life: The Burgess Shale and the Nature of History* (New York and London: W. W. Norton, 1989); an article by Ellis L. Yochelson of the U.S. Geological Survey titled "Geological Time as Calculated by C. D. Walcott," in *Earth Sciences History* 8, no. 2

(1989):150–58; and three articles by Edward F. Rivinus on Spencer Fullerton Baird in scholarly publications. Pertinent doctoral dissertations published included Debra J. Lindsay's "Science in the Sub-Arctic: Traders, Trappers, and the Smithsonian, 1859–1870," University of Manitoba, 1989; and Margaret D. Champlin's "Raphael Pumpelly and American Geology in the Gilded Age," University of California, Los Angeles, 1989.

The Archives Research in Progress lecture series continued with talks that included "Building a Research Center in Tropical America: The Origins of the Smithsonian Tropical Research Institute," by Joel B. Hagen of Radford University; "Ferdinand V. Hayden, Geologist-in-Charge," by James Cassidy, a doctoral candidate at the University of Pennsylvania; and "The Origins of the Technology Collection in the National Museum: George Colton Maynard, 1896–1918," by Richard Loomis, consultant in the Division of Electricity, National Museum of American History.

Archives Council

The Smithsonian Archives and Special Collections Council issued a manual of standards for archival materials and storage conditions, an office memorandum on the use of permanent paper for official Smithsonian records, and an office memorandum on management of archives and special document collections of the Smithsonian Institution. The council represents a score of archives and documentation units that hold more than 54,000 cubic feet of textual material, close to 5 million still photo images, nearly a billion running feet of motion picture film, almost 100,000 sound recordings, and some 6,000 video recordings. Although administered by different bureaus, together the units require staffing in excess of 130 positions and funding of nearly $6 million per year in operating costs. These units range in size from some so small they have only one staff member to a Smithsonian bureau (the Archives of American Art). They perform vital research support functions by acquiring, preserving, and providing a rich social historical context of original documentation that is primary evidence for better understanding the significance of the national collections of scientific specimens, technological artifacts, and objects of art.

Smithsonian Institution Libraries

The Smithsonian Institution Libraries (SIL) builds bridges to the future and to the past, offering its users technologically advanced information services as well as innovative programs ensuring that the Libraries' irreplaceable collections will not be lost. Accomplishments in both areas marked this fiscal year.

Moving toward the future, 12 locations in the branch library system received improved access to the library catalogue in SIBIS, the Smithsonian Institution Bibliographic Information System data base. Users and staff in the branch libraries who had unreliable "dial-up" access now have assured dedicated telecommunications linkages to the on-line catalogue. The Libraries uses SIBIS for acquisitions, cataloguing, and increasingly for circulation and inventory control. This year, four more branch libraries automated their circulation records—the National Air and Space Museum, the Anthropology Library of the National Museum of Natural History, the Museum Reference Center, and the Office of Horticulture—bringing to eight the number of locations now using the automated circulation system. Automated circulation greatly facilitates the tracking and location of items in the collections. Approximately 20,000 new items were added to the SIBIS data base this fiscal year. SIL's staff uses computer-supported systems for most internal library operations and for resource sharing and communication with other libraries. To answer user inquiries, Central Reference Branch staff conducted more than 600 on-line searches of remote data bases.

Preserving the past, SIL received special funding to establish a Brittle Books Program to rescue the endangered one-third of the Libraries' collections that otherwise would crumble and literally turn to dust. Materials heavily used by researchers and published after 1860, when wood pulp and acidic chemicals were introduced in paper manufacture, will be lost from the collection unless their contents are preserved. Under the Brittle Books Program, SIL staff will begin the labor-intensive process of reviewing and selecting deteriorated materials and then restoring them or replacing them with reprints, microfilm, or photocopies. These ambitious efforts began this year with the hiring of preservation staff and the construction of work space to consolidate all preservation-related units, including the commercial binding and preparation section and the Book Conservation Laboratory.

On June 13, 1990, donors Mr. and Mrs. Hewlett W. Lewis (seated) presented a collection of books to the Office of Horticulture Branch Library, accepted by Branch Chief Susan Gurney, Reference Librarian Marca Woodhams, and Smithsonain Institution Libraries Director Dr. Barbara J. Smith (left to right). (Photograph by Rick Vargas)

In another major preservation project—now nearly completed—a commercial publisher microfilmed more than 1,500 deteriorating publications in the SIL collections that relate to the international expositions and fairs held between 1834 and 1915. Three of the four units of microfilm in the *Books of the Fairs* project are now available for purchase by libraries and scholars, and SIL staff continued work on an illustrated guide to the SIL collection of books on fairs.

Reference Services for Library Users

SIL strengthened its support of the Institution's research programs with the addition to the staff of Bonita Perry as assistant director, Research Services Division. SIL hired two new chief librarians this year as well: Vielka Chang-Yau at the Smithsonian Tropical Research Institute (STRI) branch library and Kim Kelley at the Museum Support Center branch library. Sylvia Churgin was appointed chief librarian of the Museum Reference Center upon her return from four and a half years of service as chief librarian at the STRI branch.

SIL's services to library users in the Institution's museums, research facilities, and offices include direct daily support in 14 branch libraries. While most are on or near the National Mall, SIL has branch libraries in New York City, on Chesapeake Bay, in Cambridge, Massachusetts, and in the Republic of Panama. In Panama at the STRI branch library, despite dangerous disruptions to civil order and a U.S. military invasion, SIL staff dispensed professional services as usual. Tina Lesnik, detailed from her position as chief of Acquisitions Services at SIL in Washington, was acting librarian for six months until the new chief librarian arrived. The library provided quality services to 8,470 users, established a Library Advisory Committee, continued work

on the Panama Bibliography, and hosted a visit from Guillermo Endara, president of Panama. As members of a committee for the reconstruction of Panama, STRI branch library staff are addressing issues of the legal deposit of Panamanian publications and the conservation and dissemination of national literature.

The National Museum of Natural History's Anthropology Library merged its collections from the Bureau of American Ethnology and the Smithsonian Office of Anthropology, shifting 17,255 linear feet of books and relabeling 21,224 volumes. The collection is remarkable for its early studies of Native Americans, particularly their languages. SIL staff in nine branch libraries prepared and distributed new-title lists and bibliographies to Institution staff, the public, and libraries in the United States and abroad. Bibliography topics ranged from "AIDS Information" to "Xeriscaping," the use of drought-tolerant plants and landscaping techniques that conserve water. Staff of the 14 branches answered 61,000 reference questions, borrowed 9,500 books or articles from outside libraries, and loaned 4,800 items to outside libraries. The number of items circulated both inside and outside the system was 48,400.

Notable activities in branch libraries this year included the establishment of a rare book room for the mollusk literature and completion of the renovation of the Entomology Library at the National Museum of Natural History. A new storage area with compact shelving was constructed for portions of the National Museum of American History branch library's collection, including its unique collection of trade catalogues. The Libraries' planning officer has served on the committee designing the master plan for the Institution's Collections Research Center in Suitland, Maryland, is working with the National Museum of Natural History administration to design a rare book library, and is assisting the National Museum of American History administration with plans for the eventual renovation of that museum's branch library.

Collections Management

For several years, SIL has been struggling to meet the rising cost of journals and books, which continues to increase much more rapidly than most other consumer prices. Between 1987 and 1989, academic book prices rose by as much as 30 percent in such subjects as zoology and history. Subscriptions to foreign journals, which make up about half of SIL's purchased journal collections, will increase by an average of 20 percent in 1991, and subscriptions to U.S. journals will rise by 9 to 12 percent. The Libraries has reviewed its entire list for possible cancellations and placed a moratorium on adding new journal titles. Postal rate increases, the continuing weakness of the dollar, and political changes in Europe all contribute to the problem.

Special Collections was transferred to the Collections Management Division this year, and Chief Librarian Ellen B. Wells assumed the additional responsibility for managing the Libraries' ongoing exhibition program and its new exhibition gallery in the National Museum of American History. SIL's Book Conservation Laboratory monitors the SIL exhibit sites for environmental soundness, and its staff ensures that materials can be safely exhibited. The laboratory staff also repairs and maintains the rare and valuable collections of the Libraries, monitors book storage areas for environmental stability, and salvages materials damaged by water, mold, and insect infestation.

Gifts and Major Acquisitions

In December 1989, SIL received a gift of 186 volumes of books and journals, some trade catalogues, and business files on horticulture from the nursery firm of Lewis and Valentine of Long Island, New York. The firm's former owner, Hewlett W. Lewis, generously donated this collection, which is distinguished by its books on Japanese gardens and practical horticultural topics. Other donors presented the Office of Horticulture branch library with four nineteenth-century trade catalogues; one titled *Maples of Japan*, with color illustrations, is of great research value. The branch library at the Cooper-Hewitt National Museum of Design was awarded $4,000 by the Women's Committee of the Smithsonian Associates to purchase volume 3 of *Le Garde Meuble*, completing this rare set of nineteenth-century French furniture and drapery designs.

The David Dibner Fund made possible a major purchase for SIL Special Collections, John Collins's *Commercium epistolicum d. Johannis Collins: et aliorum de analysi promota jussa Societatis Regiae in lucum edi-*

tum (London, 1712), an important document in the Newton-Leibnitz controversy over the discovery of the infinitesimal methods of calculus. The purchase adds to the extensive collection of Isaac Newton materials, most of which were collected by Dibner's father, the late Dr. Bern Dibner, and donated to the Institution in 1974 by the Burndy Corporation. James Ross presented the National Museum of African Art branch library with Charles Ratton's *Masques africains* (Paris, 1931), a rare portfolio of plates of African masks.

SIL acquires most of its materials through purchase and through an active gift and exchange program with more than 3,900 partners worldwide. In 1990, the Libraries purchased the Robert D. Mussey, Jr., collection on varnishes and furniture finishes, 70 items ranging in date from 1702 to 1930. The collection, which will support the research and work of furniture conservators, includes many standard nineteenth- and twentieth-century works as well as some rare titles. Also this year, the Smithsonian Regents' Collections Acquisitions Fund supported the purchase of a large portion of a 56,500-item trade catalogue collection once held by the Franklin Institute. The catalogues range in date from the mid-nineteenth to the mid-twentieth centuries and cover a full range of developments in American manufacturing, agriculture, and technology. SIL's Special Collections purchased Levinus Vincent's *Elenchus tabularum, pinacothecarum, atque nonnullorum cimeiorum, in gazophylacio Levini Vincent* (1719). A description of the author's private museum with illustrations showing rooms, cabinets, and the layout of specimens in the drawers, it is one of the most beautifully illustrated museum books ever published.

Library Automation

As SIL staff enter bibliographic records into the Libraries' own on-line catalogue, they simultaneously enter them into a national bibliographic utility, the On-line Computer Library Center (OCLC). Some 10,000 libraries are members of OCLC, and all contributing members share the 20 million records for purposes of cataloguing, reference, and interlibrary loan. This year, a project to catalogue the journals and other periodic publications at the STRI branch library was completed, and work continued on a bibliography of scientific publications on Panama. SIL staff began entering records into OCLC for the Libraries' world-class collection of trade catalogues, now numbering an estimated 234,500 items. Staff of the Original Cataloging and Automated Bibliographic Control units have begun to design cataloguing procedures for maps and for the Brittle Books Program and to provide early notice on OCLC of titles being microfilmed.

Staff also worked on a study to track materials through the system from the time of request through receipt, labeling, and return from a bindery, to locate the materials needed by researchers more efficiently. Cataloguing of rare materials in botany, invertebrate zoology, furniture and design, and the history of technology was completed. SIL cataloguers have consulted by invitation with other Smithsonian bureaus about methods of bringing materials under bibliographic control. A task force reviewed and prepared a detailed report on SIBIS, now in its sixth year of operation, analyzing its capabilities with respect to the anticipated needs of the Libraries and its users and in relation to state-of-the-art systems available to research libraries.

In April, Ellen B. Wells, Smithsonian Institution Libraries special collections chief librarian and exhibition officer, delivered a public lecture titled "*Black Beauty*: From Humane Tract to Children's Classic" for the American Library Association National Library Week "Night of a Thousand Stars." (Photograph by Melissa Johnson)

Public Programs

SIL serves the wider scholarly community and the public through outreach programs that include publications, lectures, and exhibitions. The SIL exhibition "Science and the French Revolutionaries" was part of the Smithsonian's 10th international symposium, "Les Droits de l'Homme and Scientific Progress." The guest curator was Jack R. Censer of George Mason University. SIL cosponsored Censer's public lecture, "Jean Paul Marat," with the Women's National Book Association (Washington chapter) and the District of Columbia Library Association. In April, SIL participated in the American Library Association's National Library Week celebration, "Night of a Thousand Stars," by presenting "*Black Beauty*: From Humane Tract to Children's Classic," a lecture delivered by SIL librarian Ellen B. Wells, coauthor of the recently published and well-received *The Annotated Black Beauty*. From November 1989 to July 1990, SIL exhibited artifacts related to "Library Preservation: Problems and Solutions," featuring examples of brittle books, environmental damage, and alternate formats such as microfilm and videodisc. In September, Carol J. Barton gave an illustrated talk titled "Playful Readings: A History of Children's Movable Books," SIL's public lecture for the Washington Collegium for the Humanities lecture series "The World of the Child." At that time, SIL mounted an exhibition, "Magical Pages," from its collection of pop-up books in the branch library at the Cooper-Hewitt National Museum of Design. The Libraries published *Alchemical Death and Resurrection: The Significance of Alchemy in the Age of Newton*, by B. J. T. Dobbs of Northwestern University, an illustrated lecture based on an Isaac Newton manuscript in the collections and delivered for the 1988 Washington Collegium for the Humanities lecture series titled "Death and the Afterlife in Art and Literature."

With funding from the Smithsonian Foreign Currency Program, SIL administers a translation program; 262 titles have already been published, and 30 more are in various stages of production. This year's publications were *Blood-Sucking Mosquitoes of the Sub-Tribe Culisetina* and *The Role of Scent Glands in Pollination*. The Smithsonian International Exchange Service assists nonprofit institutions in the United States in the distribution of preaddressed educational and research publications to interested foreign institutions, many in developing countries. The service mailed more than 43,200 packages in 1990.

Libraries Staff

Libraries staff participated in a variety of professional activities this year, presenting papers and talks at meetings and symposia here and abroad, serving as officers and chairing committees of professional organizations, editing and contributing to publications, and planning for the second White House Conference on Libraries and Information Science scheduled for 1991. This year, SIL staff published three books, three articles, one report, and seven reviews in professional journals.

Smithsonian Tropical Research Institute

In the presence of Secretary Adams, members of the Board of Regents, and President Guillermo Endara of Panama, the Smithsonian Tropical Research Institute (STRI) dedicated its new Earl Silas Tupper Research and Conference Center in Panama City in March. The center, with modern offices and state-of-the-art laboratories, represents a major addition to STRI facilities. The following day, STRI inaugurated new housing and a dining room and conference hall on Barro Colorado Island. Also this year, a new Center for Paleoecology was established with the support of the Andrew Mellon Foundation to improve our understanding of past anthropogenic and natural changes in order to set the dynamics of global climatic change in clearer perspective.

These highlights of the year at STRI underline the importance of the institute's mission: to study tropical organisms and communities and their role in the biology of the planet; to train students in tropical research; to increase public awareness of the beauty and importance of tropical nature before it is destroyed; and to promote the conservation of tropical habitats.

STRI offers unparalleled opportunities for tropical biologists. The institute administers the Barro Colorado Nature Monument, where students can draw on 70 years of intense research. The monument includes Barro Colorado Island—5,700 acres of tropical forest declared a reserve in 1923—and nearly 10,000 acres of surrounding mainland forest protected since 1979. STRI's location on the Isthmus of Panama gives scientists access to two oceans with very different biologies only 50 miles apart, separated 3 million years ago by the isthmus, thereby creating a superb "natural experiment" in evolution.

To advance tropical research, STRI maintains a scientific staff of 27, provides financial support for predoctoral and postdoctoral students, and offers living and working facilities for resident staff and visiting researchers. These facilities include marine laboratories on both coasts with equipment for studies in molecular evolution; a field station in the San Blas Islands off Panama's coast; a well-equipped field station on Barro Colorado Island; and a campuslike facility in Panama City consisting of the new Tupper Research and Conference Center, a library, and offices.

The events of late 1989 were a reminder of the risks that can threaten STRI's research efforts. On December 20 at 1 A.M., the United States sent troops into Panama. During the ensuing disorder, the entire population of the San Blas marine station, including a four-year-old girl, was taken hostage; they were released unharmed 30 hours later. STRI installations were not damaged during the invasion, and no STRI personnel were hurt, although some property was lost. STRI was fortunate to escape so lightly both in December and during the preceding two and a half difficult years. The apolitical nature of the Smithsonian's mission has enabled it to enjoy Panama's goodwill and cooperation for more than four decades.

Research highlights from the past year exemplify the important work in which STRI scientists are engaged.

Distinguishing the Organisms

The most basic step toward understanding the natural world is to learn what organisms inhabit it. D. Ross Robertson of the STRI staff and Gerald Allen of the Western Australia Museum are preparing a guide to the fishes of the eastern Pacific from Mexico to the Galapagos. To date, they have photographed live or freshly dead specimens of 550 among the 750 species.

Are the species described by taxonomists actually the interbreeding populations envisaged by evolutionary biologists? Nancy Knowlton of the STRI staff has been studying the molecular genetics and incidence of mutual aggression in *Montastrea annularis*, the best-studied coral in the Caribbean. She has shown that what were thought to be environmental variants of this one species are actually distinct species. Interbreeding experiments on shrimps belonging to the diverse genus *Alpheus* involving populations that supposedly belong to the same species show that these species, too, are not what they seem. In all three "species" studied, Caribbean and Pacific populations are reproductively isolated; in two of these three species, coexisting Caribbean color morphs are also reproductively isolated.

Jeremy B. C. Jackson of the STRI staff and Alan Cheetham of the National Museum of Natural History are extending their genetic studies of bryozoan populations over a wider geographic range to confirm their finding that, among one group of bryozoans, the species described by morphologists are true biological species. If their finding is correct, then the fossil record's testimony is accurate concerning speciation, extinction,

and changes of diversity in this group of bryozoans.

Noris Salazar, who joined the STRI staff this year, is completing a study of the flora of the bryophytes of Barro Colorado Island, and thereby paving the way for the first ecological studies of this important group.

What Organisms Do

Kaoru Kitajima, a STRI predoctoral fellow from the University of Illinois at Urbana-Champaign, has just completed a study of how plants of different species allocate seed resources among height growth, leafmaking, and energy storage as seedlings germinate and become established. Seedlings from large seeds are more likely to use their seed-leaves primarily as storage organs, which enable these seedlings to survive in the shade until a tree overhead dies and allows abundant light to reach them. Some large-seeded species, however, use their seed reserves to produce fast-growing seedlings designed to grow above their competition in well-lit gaps.

To address the question of how fast butterflies fly, Robert Srygley of the University of Texas and Robert Dudley, a STRI three-year postdoctoral fellow, have measured flight speeds in the wild for more than 100 butterflies representing 25 species. They followed each butterfly over Gatun Lake in a motorboat, measuring the insect's air speed with an anemometer. After capturing the butterfly and taking its temperature, they assessed thermoregulation from the way body temperature depends on flight speed and weather conditions. Butterflies that birds find tastier fly faster. Some of these butterflies were migratory; their measurements will help in estimating the energetic costs of migration. Dudley has also visited Wau, New Guinea, to study the flight mechanics of birdwings, the largest butterflies in the world.

Children from the El Chorillo refugee camp examine a live sea urchin during their visit to the Naos Marine Laboratories. The Smithsonian Tropical Research Institute organized an educational program for nine groups of children whose homes were destroyed during the December invasion. (Photograph by Marcos Guerra)

This year, Alan Smith of the STRI staff finished a nine-year study of understory rosette herbs of the genera *Calathea* and *Pleiostachya* on Barro Colorado Island. Both must be lit by gaps in the canopy overhead in order to reproduce. In deep shade, *Pleiostachya* dies more quickly, but it leaves dormant seeds in the soil that sprout when light becomes available. In the shade, *Calathea* plants shrink, but they usually survive until a new gap opens overhead. They depend more on vegetative reproduction than on seeds.

To find out how a plant's physiology changes as it grows from a seedling to a canopy species, Alan Smith is seeking access, with the help of a tower crane, to the crowns of several tree species. During the year, he began a trial run with a rented crane in Panama City's Metropolitan Nature Park. Since most of the exchange of gases between the forest and the atmosphere takes place in the forest canopy, access to the canopy via the tower crane may greatly expand scientists' understanding of tropical forests.

Interdependence

The role of insects in tropical forests is one of the least-explored frontiers in tropical biology. Plants in tropical forests depend on pollinators in order to outbreed; wind is too indiscriminate a vector. An important question is how much it costs the plants to maintain their pollinators. Bees are among the principal plant pollinators. David Roubik of the STRI staff finds that Barro Colorado Island has 200 to 300 species of bees. The island averages six nests totaling 145,000 highly social bees and their brood and 75,000 solitary bees and their brood per hectare (a hectare is about 2.5 acres). Plant resins are used for nest building. The energy of nectar and pollen and of plant resins used by bees on a hectare amounts to one-third or one-half of the energy a forest loses to leaf-eaters and 4 percent of the energy content of a forest's leaf production. Roubik's research has yielded one of the first estimates of the numbers and the energy consumption of a guild of tropical insects.

Pierre-Michel Forget, a STRI postdoctoral fellow, is studying the role of agoutis, eight-pound rodents resembling the miniature forest antelopes of West Africa, in tree reproduction. Agoutis bury seeds, "scatterhoarding" them over their territories against future food shortage. The probability that a seed of wild nutmeg, *Virola surinamensis*, survives to become a six-week-old seedling increases 44-fold if a toucan or a monkey disperses it well away from the parent tree. Forget finds, however, that weevils destroy the dispersed seeds that agoutis do not bury. *Virola* seeds are dispersed when fruit is abundant, a time when agoutis need not venture far from the centers of their territories. Thus the *Virola* seeds that are dispersed to the center of an agouti's territory are much more likely to be buried and to become established seedlings. Similarly, seeds of the canopy tree *Dipteryx panamensis* apparently must be both dispersed by bats and buried by agoutis in order to become established seedlings. *Dipteryx* seeds, however, fall near the end of the season of fruit shortage, when agoutis, which relish them, are searching everywhere for food. The *Dipteryx* seeds that are most likely to succeed are those that fall latest and are buried at the edge of an agouti territory whose interior holds other kinds of trees that are beginning to drop desirable fruit. Thus agoutis may enforce a habitat segregation between *Dipteryx* and *Virola* seedlings by favoring *Virola* at the centers and *Dipteryx* at the edges of their territories.

Forest Dynamics and Tree Diversity

To find out why there are so many kinds of tropical trees and what factors influence forest diversity, Stephen P. Hubbell, now of Princeton University, and STRI scientist Robin Foster arranged for the mapping and tagging between 1980 and 1982 of every stem one centimeter or more in diameter at breast height (DBH) on a 125-acre plot of old forest on Barro Colorado Island. In 1985, the plot was recensused, new stems were mapped, and growth and mortality recorded in old ones; this census recorded the abnormally high mortality imposed by the El Niño dry season of 1985. Foster is currently supervising the third census, which may reveal the dynamics of Barro Colorado's forest under less extreme climatic conditions.

In Peru's Parque Nacional Manu, Foster has been assessing how seed dispersal may contribute to plant diversity. How do plants with "explosively dispersed" seeds—seeds that are flung into the air when their cap-

sule bursts open and that do not travel far—compare in their contribution to forest diversity with plants whose seeds are dispersed by animals or wind and that usually travel much further? Foster censused several sites, each consisting of 100 stems over 1 centimeter DBH, on dry slopes of hills or old terraces near the Manu River. On the average, 50 of the 100 stems, representing 11 species, were plants that disperse their seeds explosively. The remaining 50 stems, representing 44 species, were plants that disperse their seeds by other means.

In Manu Park, explosively dispersed species are concentrated in three families: *Rutaceae* (citrus), *Euphorbiaceae* (spurge), and *Violaceae* (violet). These three families dominate the forest understory on dry ridges but are also abundant on old landslides and alluvial fans, as if their seeds were lying dormant in the soil when it moved down from the ridges. This situation may suggest that plants living on such poor soils may use chemical defenses more than dispersal to escape from herbivores.

Sexual Selection

Darwin thought that speciation often reflects the accidental divergence of sexual selection in isolated populations, causing members of each population not to recognize the others' members as suitable mates. The criteria by which females prefer some males over others as mates—which differ in different populations—play an essential role in driving sexual selection.

How do females choose their mates? Do their criteria favor "better" males? Calls of the Panamanian frog, *Physalaemus pustulosus*, include a "whine" and, if other males are calling, one or more "chucks," which enhance the calls' attractiveness to females. With Walter Wilzynski of the University of Texas, Stanley Rand of the STRI staff is trying to discover what aspects of the whine are needed to attract females. Synthesized calls omitting the first, middle, or last third of the whine are as attractive to females as "whole" whines.

In Ecuador, the calls of *Physalaemus coloradorum* males lack chucks. Reversing an earlier conclusion, Rand and Michael Ryan of the University of Texas have discovered that synthesized calls with *pustulosus* chucks adjoined to *coloradorum* whines attract *coloradorum* females more effectively than normal *coloradorum* whines.

Smithsonian Tropical Research Institute scientist Dr. John Christy uses a video camera to track mating behavior of fiddler crabs. His assistant Todd Underwood uses a blow gun to mark each burrow the receptive female enters while collaborator Dr. Ursula Shober makes observations. (Photograph by Carl Hansen)

STRI biologist John Christy has been studying how female fiddler crabs, *Uca beebei*, choose mates. He finds that females visit and reject several males' burrows before choosing a mate. Yet detailed study suggests that they do not choose a male by its burrow. This finding overturns an earlier conclusion that they choose to mate with males possessing larger or deeper burrows. Christy thinks that the females are influenced primarily by courtship inside the burrows.

In Costa Rica, STRI biologist William Eberhard is comparing the courtship and mating behavior of three

species of rose-chafer beetles. Two of these coexist on many species of plants; all three coexist on some. The mating behaviors of these three species are all different. Did they diverge to ensure that beetles mate only with members of their own species, or are these differences the accidental outcome of divergence under sexual selection? Their copulation behavior is complex, and some pairings last several days. Males rarely mount females of the wrong species. In at least two of these three species, however, males often abandon copulations with females of their species less than two minutes after mounting, long before they could have transferred sperm. Aborted matings with females of the same species are 10 to 100 times more common than attempts to mate with females of different species, suggesting that the driving force in the evolution of these beetles' mating behavior is sexual selection by female choice.

Most bluehead wrasses (a Caribbean coral reef fish) are born female and transform into "gaudy" males when large enough to attract females and defend territories against other males. Large patch reefs also have "drab" males, bluecheads that are born male but retain female coloration until big enough to play the role of gaudy males. Females prefer to mate with gaudy males, but on large patch reefs only a few gaudies can coexist, and females often have to wait for matings, allowing drab males to reproduce as successfully as females by "alternative" mating strategies that do not require large size and social dominance. Fertilized eggs from reefs of all sizes, however, develop into fish larvae in the plankton where they are all mixed together. To learn how a patch reef receives its appropriate complement of drab males, D. Ross Robertson of the STRI staff has been rearing bluehead larvae derived from reefs of different sizes, in groups of different sizes.

Speciation and Evolutionary Divergence

How do new species form, and what leads a species to divide into two reproductively isolated populations? STRI scientist Nancy Knowlton studied what was supposedly a single species of alpheid shrimp that lives on anemones: the shrimp and its host anemone help defend each other. This shrimp "species" actually includes four noninterbreeding "sibling species," three of which live on one species of anemone. One of the four noninterbreeding populations that make up this species lives on a species of anemone different from the one used by the other three. This population has very little genetic variation, as if it descended from a very few founders who "accidentally" colonized a different species of anemone and whose descendants stuck with it.

Three million years ago, the Isthmus of Panama simultaneously divided many marine populations into geminate pairs, allowing a test of the "molecular clock." Eldredge Bermingham and Haris Lessios of the STRI staff found that among three geminate pairs of sea urchins, levels of protein divergence vary 20-fold, with *Diadema* diverging least and *Echinometra* most. The degree of divergence in the DNA of mitochondria from populations on the two sides of the isthmus, on the other hand, are very similar for the three pairs, with *Diadema* diverging least—5 percent—and *Eucidaris* most—7.5 percent. For several geminate pairs of fish, including two pairs of sergeant-major (such as *Abudefduf*, a pair of snappers, *Lutjanus*, or a pair of *Chromis*) Bermingham finds that divergence in mitochondrial DNA ranges from 4 to 6 percent. Timothy Collins, a STRI postdoctoral fellow, had found that among geminate pairs of the marine snails *Vasum*, *Plicopurpura*, and *Thais*, mitochondrial DNA divergence ranges from 8 to 12 percent.

Collins compared the DNA sequences of a 300-base-pair length from the gene for cytochrome B from geminate populations of species split by the isthmus. Geminate populations of *Diadema* differ at 38 base pairs, the two pairs of *Abudefduf* differ at 4 and 13, respectively, two pairs of porkfish, *Anisotremus*, differ at 4 and 9, respectively. These differences are far greater than chance can account for. However, longer sequences might offer a more reliable molecular clock: that is, the number of base pairs in which longer sequences differ may be more nearly proportional to the time since their population diverged.

Coevolution

Each species of fig tree has its own species of wasp as pollinator, whose life cycle is bound to that of the fig. In turn, the wasps carry parasitic nematodes. One interesting question is, have the wasps and nematodes

speciated in step with the figs, or have wasps or nematodes of one host species occasionally invaded and taken over another? Allen Herre, a STRI postdoctoral fellow, is comparing the phylogenies of figs, their wasps, and the wasps' nematodes. He is inferring the evolutionary trees of figs and wasps from sequenced fragments of mitochondrial DNA and fig phylogenies from chloroplast DNA. If, as is probable, the phylogenies of figs, wasps, and nematodes coincide, Herre will test the "molecular clock." Is genetic divergence between a pair of figs proportional to that between their wasps and to that between the wasps' nematodes? Does the molecular clock tick in years or in generations, elapsed since speciation? Generation times of wasps and their nematodes are identical, while fig trees have vastly longer generations. Herre will try to answer this question.

Alternatives to Deforestation

Pacas are large (25-pound) forest rodents that are considered the best-tasting game animal in Panama. STRI biologist Nicholas Smythe has succeeded in domesticating this species so that they can live amicably in social groups. He is now distributing groups of tame, easily handled pacas to Panamanian farmers so that they can start breeding them for market. Some of these pacas have already started breeding for their new owners.

In October 1984, STRI scientist Gilberto Ocaña arranged the planting of a forest garden of *Acacia mangium* trees, interplanted with various root crops, in degraded pastureland near Gatun Lake. He sought to demonstrate a profitable, ecologically sound way of farming a plot on a sustainable basis, avoiding the need to shift to new land when the soil wears out. Beginning in December 1988, eight goats were acquired, stabled, and fed with leaves from this forest garden. Twenty months later, they had become 24. The oldest are now past their peak, and others are too young to attain full yield, but eight have attained the weight gain, breeding rate, and milk production reported from the Centro Agronómico Tropical de Investigación y Enseñanza in Turrialba, Costa Rica, after long-term experimentation. Extensions of this experiment are being planned in close collaboration with six Panamanian government institutions concerned with conservation and with the restoration of degraded lands.

Outreach

To mark the inauguration of the Tupper Center, STRI opened the exhibition "Parting the Green Curtain: The Evolution of Tropical Biology." With the aid of volunteer docents, the Education Office has guided visits for organized school groups to the exhibition and to the center. In August, STRI hosted its first international symposium in the Tupper Conference Center. Supported by the Social Science Research Council and the Smithsonian as part of its Quincentenary Program, the conference brought together more than 40 international specialists interested in cultural systems and environments in the lands visited by Christopher Columbus on his four voyages to the New World.

The Spanish edition of *Ecology of a Tropical Forest* was published this year. This book, which demonstrated the fundamental role of the seasonal and annual variation of fruit and leaf production in maintaining the "balance of nature" in tropical forests, will now be accessible to Spanish-speaking readers in Latin America. Published with support from the Smithsonian's Atherton Seidell Fund, the Spanish version includes 2 new articles and 10 articles that were updated or revised.

Elena Lombardo was appointed assistant director in charge of the new office of external affairs, which will work to expand STRI's international activities. Because of STRI's recent expansion, a new Visitors Services Office to assist visiting researchers was established at the Tupper Center under the direction of Gloria Maggiori.

STRI continued to support international and local conservation efforts. The depressed local economic situation increased poaching in the Barro Colorado Nature Monument and other parks and reserves. To supervise the protection of the monument and security of all facilities, the Office of Protection Services appointed Alejandro Arze as STRI's first security officer.

Eric Fischer, deputy director since 1988, announced his resignation to become vice-president for science and sanctuaries of the National Audubon Society.

MUSEUMS

Tom L. Freudenheim, Assistant Secretary for Museums

The development of an Experimental Gallery and the creation of a new African American initiative were the highlights of the year for the Office of the Assistant Secretary for Museums.

The Experimental Gallery, which will open in the Arts and Industries Building in January 1991, will offer opportunities for exploring exhibition technique and style, audience and access, and the exhibition development process and exhibition context. In a workshop setting, Smithsonian museum staff will be able to experiment with exhibition components and revise them before they are installed in fully realized exhibitions. They will also be able to reinstall successful exhibition experiments and mount original experiments developed by museums within and outside the Smithsonian. Although the gallery will eventually cover many subjects, its initial emphasis is multicultural exhibitions in the arts, humanities, and sciences and interactive exhibitions in the physical and natural sciences. Directed by Kimberly Camp, the Experimental Gallery was initially funded by the Cafritz and Rockefeller foundations and recently received a major grant from the Pew Charitable Trusts.

African American initiatives at the Smithsonian have been of wide interest in recent years. In the past, individual museums have developed their own collections and research interests in this area, but the growing public interest in African American history and culture has prompted the Institution to take a closer look at its programming.

In late 1989, the Smithsonian appointed Claudine K. Brown interim director of a new project that will examine the form and content of an African American presence on the National Mall. A 22-member committee is working to identify and review the options, which include a new museum, a research center, and a trust for existing African American museums throughout the nation. The options will be studied and discussed and a recommendation will be presented in early 1991.

The Assistant Secretary for Museums administers two internal grant programs, the Special Exhibition Fund and the Collections Acquisition Program. Both programs receive annual trust fund allotments from the Board of Regents. For the first time this year, these and other funds affecting research, fellowships, and educational outreach were cut significantly from projected levels because of overall institutional budget cuts.

The Special Exhibition Fund was established to support exhibitions at the Smithsonian resulting from scholarly research in any areas represented throughout the Institution. In recent years, the purpose was broadened to supplement federal appropriations for permanent and temporary exhibitions and to encourage experimentation in communicating with the broadest possible range of visitors. This year, 22 awards were given for upcoming exhibitions including "Global Image: The Process of Mapping" at the Cooper-Hewitt National Museum of Design, "Chicano Art: Resistance and Affirmation" at the National Museum of American Art, "Court Arts of Indonesia" at the Arthur M. Sackler Gallery, "Principles of Flight" at the National Air and Space Museum, and "Good, Bad, and Cuddly" at the National Zoological Park. Funding was also made available for several exhibitions related to the Columbus Quincentenary commemoration in 1992.

The Collections Acquisition Program disbursed more than $1.7 million this year for more than 20 requests. Among the major acquisitions were *Trial of Red Jacket* by John Mix Stanley, by the National Museum of American Art; a South Carolina Revolutionary War flag, a joint purchase by the National Museum of American History and the state of South Carolina; the José Duret Mosquito Collection and a Guatemalan Mayan costume collection, by the National Museum of Natural History; and a photographic atlas of the Northern Sky, by the Smithsonian Astrophysical Observatory.

In July, the Office of Institutional Studies (OIS) joined the program of the Assistant Secretary for Museums. The OIS conducts studies and evaluations of exhibitions, programs, and operations throughout the Smithsonian.

Anacostia Museum

During the Anacostia Museum's 23-year history, it has grown from an experiential hands-on museum to an influential museum of African American history and culture. As the museum enters the 1990s, it continues to review, consolidate, and strengthen its focus while beginning to plan for further development at the possible site of Poplar Point in Anacostia. To this end, the museum is conducting a series of roundtable discussions on its relationship to the community and its exhibition, education, and research programs. The museum has a revised mission statement and looks forward to completing the review of its collections management policy and beginning a collection program.

The Anacostia Museum's mission is stated as follows: "The museum will continue to serve as a national resource for exhibitions, scholarly and applied research, historical documentation, and interpretive and educational programs relating to African American history and culture.

"The museum will continue to look to new ways to forge strong ties with the communities it serves and explore urban issues which affect everyday lives."

Exhibitions

The summer exhibition "Whose Art Is It, Anyway? The Arts in Public Places" explored the processes and issues surrounding the arts found in public places, including sculpture, murals, dance, song, and artistic clothing and hair styles. This year also marked the extension of the highly successful major exhibition "The Real McCoy: African American Invention and Innovation 1619–1930." In anticipation of the District of Columbia bicentennial celebration in 1991, historian Edward Smith is conducting research for an exhibition on the 200-year struggle by African Americans to secure equal rights in the nation's capital. "To Achieve These Rights" will open in October 1991.

Public Programs

The Education Department developed a full range of programs to support "The Real McCoy," including "Inventor for a Day," seminars by experts on the process of securing patents. The African American holiday Kwanzaa was celebrated during December with drumming and dancing, lectures, storytelling, and a family workshop. The department also conducted its annual Black History Month Planning Clinic and offered a course to area teachers for academic credit, "African American Visual Arts in Washington, D.C." The summer science camp utilized the new George Washington Carver Nature Trail in the wooded area surrounding

Children participate in the opening activities for the Anacostia Museum exhibition "Whose Art Is it Anyway? The Arts in Public Places." (Photograph by Richard Strauss)

In 1990, the Smithsonian Institution Traveling Exhibition Service reconfigured "The Real McCoy: African American Invention and Innovation, 1619–1930," organized by the Anacostia Museum, for national travel. This installation photograph shows a model of inventor Lewis Latimer at his drafting table. (Photograph by Harold Dorwin)

the museum to teach urban children environmental science, as well as African American history and culture. A continuing program is the Friends for the Preservation of Afro-American Culture, which holds discussions of collecting issues.

New initiatives this year included the establishment of the museum's first gift shop; publication in spring 1990 of the first Anacostia Museum newsletter; scripting and design for a small traveling exhibition, "The Renaissance: Black Arts of the Twenties"; and production of the museum's first interactive video, "Are You an Inventor?" As the fiscal year came to a close, the museum launched a project to observe the Columbus Quincentenary that will include programs and an exhibition exploring the different African American communities in the Washington, D.C., metropolitan area.

The Archives of American Art, a national research bureau of the Smithsonian Institution, is dedicated to encouraging the study of American art and cultural history. During fiscal 1990, the Archives focused particular energy on preparing for increased access to its collections, which number more than 10 million items, and on enhancing its services to researchers.

The conversion of the Archives' manual catalogue to an automated data base was a major project this year. During the conversion, the information available in each catalogue entry was refined, verified, and increased. A related activity was the entry of condition, location, and accession data that give the Archives increased control of its collections. The research portion of the automated data base, now nearing completion, will be entered next year into the Research Libraries Information Network and make the Archives catalogue available to researchers in libraries all over the country.

Concurrently, the Archives began to review and update its reference services and its lending policies and procedures in preparation for serving a larger and more active national constituency. It also initiated an outreach program to midwestern colleges and universities, presenting Archives programs and services to students, instructors, and librarians.

Richard Manney (left), co-chairman of the Archives of American Art tribute to Richard A. Manoogian, long-time trustee, poses with Mr. and Mrs. Manoogian and Mrs. Manney prior to the Archives benefit dinner in New York's Metropolitan Club. (Photograph by Steven Tucker)

Arthur M. Sackler Gallery

Collections

More than 121 collections containing some 275,000 items were acquired during this fiscal year. In addition, the Archives borrowed another 28 collections for microfilming. Among materials received were the papers of ceramist and teacher Frans R. Wildenhain and sculptor Dimitri Hadzi, as well as those of Edmund C. Tarbell, painter and former director of the Corcoran School of Art in Washington, D.C. A select group of Winslow Homer letters was acquired, as were the papers of African American sculptor James W. Washington and California painter Francis de Erdely.

The Archives conducted 37 oral history interviews and acquired another 93 interviews through gifts. Among the most significant are interviews with Faith Ringgold, Joel Shapiro, Duane Hanson, Miriam Schapiro, Ellsworth Kelly, Sam Gilliam, Carlos Villa, Masami Teraoka, and Agnes Martin.

Public Programs

The Archives sponsored two major symposia this year: one in San Francisco titled "Art, Politics, and Democracy" and one in Detroit titled "Roses, Too: Sixty Years of Labor Art Programs." An Archives guide to "Art-Related Archival Materials in the Philadelphia Region" was published, a product of the first part (1984–89) of the Philadelphia Documentation Project, a collecting and microfilming project. Booklets on the Walter Pach Papers and the Niles Spencer Papers were published to accompany exhibitions in the Archives gallery at the Equitable Center in New York. The latter exhibition was a joint effort with the Whitney Museum of American Art, which organized a retrospective showing of Spencer's work.

Staff

Richard J. Wattenmaker joined the Archives staff as national director in September. Susan Hamilton served as acting director during the year.

The Arthur M. Sackler Gallery, like the neighboring Freer Gallery of Art, is a national museum of Asian arts at the Smithsonian, and the two museums share a single staff. This year, the three-year-old Sackler Gallery continued to expand its holdings through purchase and gift, particularly in the twentieth-century arts of Asia—from Japanese ceramics and Chinese painting to the folk arts of India. The museum also added a large group of photographs by Raghubir Singh in connection with its exhibition of Singh's work.

Exhibitions

The year opened with "The Noble Path: Buddhist Art from South Asia and Tibet," an exhibition of sculptures, paintings, and ritual objects from the collections of the Los Angeles County Museum of Art that range in date from the first century B.C. to the eighteenth century. The series of free public education programs accompanying the exhibition included weekly presentations by Buddhist monks from Washington-area temples; films and videos on contemporary Buddhist beliefs, teachings, and practices; and lectures on Buddhist history, pilgrimage sites, and architecture. With funding from the *Washington Post*, the museum bused 900 area schoolchildren to the exhibition.

"Yokohama: Prints from Nineteenth-Century Japan," the museum's first exhibition of Japanese art, featured 85 color woodblock prints depicting the city of Yokohama, its burgeoning trade industry, and the Japanese view of the first foreign residents after 250 years of national seclusion. Prints in the exhibition were lent from the collection of William and Florence Leonhart of Washington, D.C., with the participation of the Daval Foundation. The exhibition was made possible by the Yamanouchi Pharmaceutical Co., Ltd. A full-color catalogue by exhibition organizer Ann Yonemura, assistant curator of Japanese art, complemented the exhibition.

Research and Publications

Museum scholars received grants for research and exhibition projects in each of the museum's geographic specialties. Senior research scholar Thomas Lawton organ-

This detail of the painting *Red Plum Blossoms* is from a handscroll by the Chinese painter of the Ming dynasty Yao Shou (1423–1495). The scroll was transferred to the Sackler Gallery from the collections of the National Museum of Natural History.

ized a symposium titled "New Perspectives on Chu Culture during the Eastern Zhou Period," which featured lectures by four internationally known scholars. Distinguished collector Paul Singer lent some choice works for a small concurrent exhibition, "The Art of the Chu." The symposium was made possible through the generosity of Mrs. Arthur M. Sackler.

Louise Cort, assistant curator for ceramics, completed a year's leave of absence studying ancient kilns, historical sites, and contemporary ceramic production in northeast Thailand, Laos, and southwest China.

A workshop titled "The Construction of the Ancient Near East" was organized by Ann Gunter, assistant curator of ancient Near Eastern art, and Mogens Trolle Larsen, director of the Center for Research in the Humanities, Copenhagen University. Thirteen scholars from universities and museums in North America, Europe, and Great Britain presented papers on the history of the field of ancient Near Eastern studies; these papers will be published in a forthcoming volume. The workshop was funded through the Smithsonian's Office of Fellowships and Grants.

The reference library, which is open to the public without appointment, responded to 5,230 requests for materials and information, an increase of 45 percent from 1989. The library expanded its collection by 2,666 volumes; the preponderance of acquisitions consisted of material on South and Southeast Asian art and archaeology and on the Japanese and Chinese languages.

Public Education and Outreach

Museum staff directed their efforts at evaluating new audience needs. The Sackler Gallery Accessibility Council, founded in 1987 and chaired by Sarah Ridley, met with specialists throughout the year who suggested ways for the museum's programs and activities to serve visitors with disabilities. Council members review each new exhibition from the perspective of such visitors, and many of their comments have been incorporated into the design of subsequent exhibitions. In several galleries, for example, walls have been repainted and labels rescreened to increase readability.

The museum mailed its bimonthly Sackler Gallery *Calendar* to some 15,000 subscribers. Thanks in large part to a generous donation from Mrs. Else Sackler, the museum redesigned and enlarged the calendar to include more information on exhibitions and programs.

Staff Changes

To better reflect the breadth of the Freer and Sackler collections, two new scholarly posts were added. Carol Bolon was named assistant curator of South and Southeast Asian art, and Jenny So became associate curator of ancient Chinese art. In recognition of the growing need for financial support for exhibitions, research, and public programs, the Sackler and Freer galleries added a Development Office headed by Laurel Muro, formerly of Seattle University.

Conservation Analytical Laboratory

The Conservation Analytical Laboratory (CAL) conducts technical and scientific research on museum objects and related materials for the purposes of improving the preservation of Smithsonian museum collections and gaining a fuller understanding of their historical context. CAL's training program offers unique educational opportunities for students in conservation, materials science, archaeology, and art history. This year saw progress in existing research programs and the initiation of several new efforts. The training program also had a successful year, with the graduation of the first class in the Furniture Conservation Training Program.

Archaeometry

Physical and natural scientists conducting archaeometric research at CAL collaborate with scholars from the arts and the humanities to address questions pertaining to archaeology or art history by technical means. Some of these studies require highly specialized technical facilities, which CAL operates at the National Institute for Standards and Technology in Gaithersburg, Maryland, under collaborative agreements with that organization (formerly the National Bureau of Standards).

This year, CAL completed the installation of a dedicated laboratory for its biogeochemistry program, in which scientists study minute amounts of proteins extracted from calcified tissues from paleontological or archaeological skeletal material. CAL scientists succeeded in isolating immunoglobulins and DNA from ancient bone, opening the way to studies that may reveal exposures to specific diseases, as well as genetic information from skeletal material.

The technical studies of paintings by Albert Pinkham Ryder, a program conducted in collaboration with staff of the National Museum of American Art (NMAA), culminated in the preparation of a special technical section for a major exhibition of Ryder's works that opened at NMAA in April. Also in collaboration with the NMAA staff, CAL researchers organized a special symposium, "Technical Studies in American Painting," which attracted more than 200 scholars from across the country.

Conservation Research

In this CAL program, researchers, typically working in teams of scientists and conservators, identify and characterize the chemical and physical processes involved in the deterioration of museum objects or develop and evaluate treatment technology for unstable objects.

CAL's project on the evaluation of the risks of art in transit, performed in collaboration with the Canadian Conservation Institute and the National Gallery of Art, made great progress. CAL researchers are now able, for example, to produce reliable predictions of the effects of shocks, vibrations, and changes in environmental conditions on a given painting.

In a multiyear project, CAL researchers studied the effects that the solvents used for the removal of deteriorated varnish from oil paintings may have on the underlying paint layers. The researchers have made a number of unexpected observations, including the occurrence of mechanical stresses induced by the fast cooling of the paint layers due to evaporation of the solvents.

CAL initiated new pilot projects to study the deterioration of modern synthetic materials, such as the elastomers used in the fabrication of spacesuits on exhibit at the National Air and Space Museum and the effects of commonly used liquid storage media on the preservation of molecular information in natural history specimens.

In keeping with CAL's intention to expand its programs in archaeological conservation, a staff conservator collaborated with archaeologists involved in the excavations of a classical period Mayan site at Joya de Ceren, El Salvador. She assisted in the excavation and lifting of the severely deteriorated remains of a rare Mayan codex, which then were brought to the CAL facilities for further technical study and, if possible, partial recovery.

Training

The major event of the year was the graduation of the six students in the first class of the Furniture Conservation Training Program. These students, as well as several members of the second class, which finished its first year of course work, have already found employment in major museum conservation departments.

Photographic materials research scientist Mark McCormick-Goodhart pours collodion onto a glass plate in the re-creation of a historic photographic process at the Conservation Analytical Laboratory. (Photograph by Doc Dougherty)

CAL organized eight advanced courses for practicing conservators on such topics as on-site archaeological conservation techniques, use of the suction table in paper conservation, color theory and measurement, display materials, mechanical properties of materials and objects, and analysis of historic textile dyes. CAL conservators and scientists also taught specialized courses in the joint CAL–Johns Hopkins University graduate program in conservation science and supervised the research performed by students in this program as part of their degree requirements. Interns at various levels of training and experience worked under the guidance of CAL specialists.

In collaboration with the United States Information Agency and the Latin American Scholarship Program of American Universities, CAL organized a week-long seminar for Latin American Fulbright Fellows studying in archaeological programs at U.S. academic institutions. The seminar addressed issues concerning the application of scientific analytical methodologies in archaeological research.

Cooper-Hewitt National Museum of Design

Encouraging good design and fostering an improved understanding of the design process, raising the level of discussion in related fields, and improving the dialogue between audience and designer are the goals of the Cooper-Hewitt National Museum of Design. The museum pursues these goals through a variety of programs, including provisions for making the collections available for study, research, and display; educational programs; exhibitions; publications; and conferences keyed to significant design issues.

Two of the museum's major concerns this year were developing methods to educate visitors, particularly children, about design and improving the museum's accessibility to a diverse audience. These concerns are now emphasized in planning the museum's exhibitions and educational programs.

Exhibitions and Programs

Design and its varying forms of expression defined the scope of the museum's principal exhibitions in fiscal 1990. Alexander Calder's unique creations of teacups, toys, and jewelry were featured in "The Intimate World of Alexander Calder." "Flora Danica and the Heritage of Danish Porcelain" surveyed the forms, techniques, and decoration of Danish porcelain. In the major exhibition "Color, Light, Surface: Contemporary Fabrics," the museum presented fabrics manufactured in the United States, Europe, and Asia. Architects' and designers' whimsical visions for doghouses were shown in "The Doghouse."

For each exhibition, particular emphasis was placed on providing cogent, imaginative, and accessible educational programming. In the museum's first experiment with education for children in many years, classes for schoolchildren were created for the Calder exhibition using an artist-educator for classroom and gallery visits. A study funded by the New York State Council on the Arts has enabled the museum to work with education professionals with the goal of establishing a full Education Department to supplement the successful Public Programs Department.

The museum's dedication to serving a diverse public

A blind visitor reads braille labels accompanying "The Doghouse" exhibition at the Cooper-Hewitt Museum. The museum encouraged those with a sight impairment to bring their guide dogs to the exhibition.

is now integrated into its exhibitions and programs. The exhibition "The Doghouse" not only showcased unique and innovative structures but highlighted the museum's desire to make its building and exhibitions accessible to a wider audience. In collaboration with Guiding Eyes for the Blind, Inc., a local guide-dog school, the museum made the exhibition physically accessible to the blind and visually impaired, a population not usually served by a visual arts museum. Assisted by experts on blindness, the museum has begun to assert a new awareness of the needs of special audiences who may never have considered the value of a design museum to their lives. Exhibitions at Cooper-Hewitt now feature some works that can be touched, as well as large-print and braille descriptive labels or brochures and tours designed for special audiences. For the exhibition "Color, Light, Surface: Contemporary Fabrics," for example, manufacturers supplied fabric samples for the public to touch. In addition, plans are well under way to make the historic Andrew Carnegie Mansion more physically accessible to disabled visitors.

The museum continues striving to attract a more culturally diverse audience that mirrors the population of New York City and the United States. To this end, the museum has made serious efforts to work with the Hispanic communities of New York to create programs such as "Nueva York Tropical," a successful summer lecture and concert series attended by more than 1,000 people. These programs continue to draw new and more diverse constituencies to Cooper-Hewitt as it works to fulfill its purpose as the National Museum of Design.

Freer Gallery of Art

The Freer Gallery of Art was closed for a second year in a multimillion-dollar project to expand and improve space for art conservation, research, collection storage, and visitor facilities. The project is the first complete refurbishment in the Freer's nearly 70-year history. When possible, the Freer Gallery staff has arranged access for members of the public who need to study or conduct research on the museum's world-renowned collections of Asian and nineteenth- and early twentieth-century American art.

Major work was completed this year on the central courtyard, which provides abundant natural light and a pleasant backdrop to the Freer's corridors and galleries. The Freer requires space to house its growing art collection safely, and the area beneath the courtyard proved indispensable for this purpose. Miniature earth-moving equipment carved out earth up to 22 feet below ground. A crane lifted the soil over the Freer, and a conveyor belt carried it through the building. The resulting space will provide for storage and study of Asian ceramics, furniture, textiles, and sculpture. Above the new facility, the courtyard will be reinstalled according to the original architect's design.

Other important aspects of the project are well under way. Among them are construction of an exhibition space linking the Freer with the neighboring Sackler Gallery and expansion of space for the art conservation laboratory, which will include studios specializing in Japanese and Chinese painting restoration. A new elevator linking all three public levels will improve access to the museum, especially for visitors with mobility impairments.

As the architectural work proceeded, a two-year research and conservation effort to restore "Harmony in Blue and Gold: The Peacock Room" began in November with $150,000 in matching funds from the Getty Grant Program of the J. Paul Getty Trust and $50,000 from the James Smithson Society. The Peacock Room, an icon of the Freer collection, is the only surviving interior design scheme by American expatriate artist James McNeill Whistler. Generally acknowledged to be the most important nineteenth-century interior in an American museum, the room is permanently installed as one of the Freer's exhibition galleries. A team of painting conservators from the University of Delaware/Winterthur Art Conservation Program is carrying out

Conservator Wendy Samet (left) takes paint samples from the north shutter in the Peacock Room, which is undergoing major conservation in the Freer Gallery of Art. Conservation intern Nancy Pollak is making a record of each sample as it is removed. (Photograph by John Tsantes)

the renovation in association with the Freer's curatorial and conservation departments.

Research and Public Education

Research was initiated and completed for a multidisciplinary project to compare the Freer and Sackler galleries' ancient Iranian metalwork with similar pieces from institutions in North America, Japan, Great Britain, Europe, and the Soviet Union. A Smithsonian Scholarly Studies grant was instrumental to this project. Ann Gunter, assistant curator of ancient Near Eastern art, was the principal investigator for the research team, which also included W. Thomas Chase and Paul Jett, head and senior conservator of conservation and scientific research, respectively. Pieter Meyers, head of conservation, Los Angeles County Museum of Art, served as consultant. A detailed catalogue of the ancient Iranian metalwork in the Freer and Sackler collections is planned for publication in 1992.

Acquisitions

Among the exceptional additions to the collection this year were a hanging scroll of calligraphy by the Chinese Emperor Ch'ien-lung (reigned 1736–95), which was a gift from Mrs. John A. Pope, and a silver rosewater bottle made in India around 1700. Other acquisitions included a necklace and two pairs of ear ornaments, outstanding examples of nineteenth-century Indian gold jewelry. Purchase of the necklace was made possible in part by the Misses Rajinder and Najinder Keith.

Hirshhorn Museum and Sculpture Garden

The Hirshhorn Museum and Sculpture Garden, the Smithsonian Institution's museum of modern and contemporary art, is committed to increasing the awareness and understanding of art through exhibitions and related publications, acquisitions, and public programs.

Exhibitions

Coinciding with the 80th birthday of the British painter Francis Bacon, the museum presented an overview of his far-reaching achievement. "Francis Bacon," curated by Director James T. Demetrion, drew high attendance at the Hirshhorn and a steady stream of international press coverage during its national tour. "Culture and Commentary: An Eighties Perspective," organized by guest curator Kathy Halbreich of the Museum of Fine Arts, Boston, featured the work of 15 international artists who responded to some of society's most significant changes during the past decade. Other exhibitions included "Bay Area Figurative Art, 1950–1965," organized by and first shown at the San Francisco Museum of Modern Art, to which the Hirshhorn lent nine works.

The "Directions" series, which focuses on small-scale solo shows, highlighted the work of the Russian artist Ilya Kabakov, Swiss-born Christian Marclay, and the Spanish sculptor Susana Solano. "WORKS," which features temporary installations created for the museum's building and grounds, offered site-specific pieces by the American artists Dennis Adams, David Ireland, and Matt Mullican. The LEF Foundation provided the funding for the publication of *Hirshhorn WORKS 1989*, the series' second yearbook.

Loans

The Hirshhorn lent 113 objects to museums in the United States and abroad. Five paintings and drawings by Yasuo Kuniyoshi were included in a large retrospective shown in Tokyo, Okayama, and Kyoto. Edouard Vuillard's *Portrait of the Artist's Grandmother* toured with "The Intimate Interiors of Edouard Vuillard," an exhibition organized by the Museum of Fine Arts, Houston, with venues that included the Phillips Collection in Washington, D.C., and the Brooklyn Museum in New York. The painting then went to Europe for a traveling retrospective there. The Hirshhorn lent its newly acquired work by Edward Ruscha to a large exhibition of the artist's work organized by the Museum Boymans in Rotterdam that was also on view in Paris, Barcelona, London, and Los Angeles. Maurice Prendergast was the subject of an exhibition mounted by the Williams College Museum of Art. The Hirshhorn lent two works to the show, which traveled to New York, Los Angeles, and Washington, D.C.

Acquisitions

The museum's permanent collection was enriched by 18 purchases and 13 gifts. Among the acquisitions were *Stringed Figure No. 1* (1937) by Henry Moore, a seminal abstraction of carved wood with rows of string; *Five Past Eleven* (1989), by Edward Ruscha; and *Two Indentations* (1967), by Richard Artschwager. New works by European artists also entered the collection, among them Mario Merz's *From Continent to Continent* (1985) and Georg Baselitz's *Ciao America I* (1988). The museum has continued to acquire important paintings and sculptures by other artists, including Eric Fischl, Luis Jimenez, and Paul Thek. Notable gifts include a sculpture by Michael Singer, from Mrs. Vera List, and a sculpture by Athena Tacha, from Dr. Ellen H. Johnson. While federal funds supported a portion of this fiscal year's acquisitions, the majority of works were acquired with the support of such private funding sources as the Joseph H. Hirshhorn Purchase Fund, the Estate of Joseph H. Hirshhorn, the Regents' Collections Acquisition Fund, the Holenia Trust, and the Lannan Foundation.

Education and Public Programs

To help bring the exhibitions and permanent collection alive for the Hirshhorn's 20,000 group-tour participants—who range from schoolchildren to senior citizens—30 new docents were recruited and trained. The museum's roster of active docents now numbers well over 100, and because many are fluent in languages other than English, the Hirshhorn now offers tours in French, Spanish, German, Russian, and American sign

National Air and Space Museum

Stringed Figure No. 1 (1937), an early masterwork of wood and string by British sculptor Henry Moore (1898–1986), was acquired through the Joseph H. Hirshhorn Purchase Fund.

language. Among scheduled lectures were the monthly "Focus" talks, which featured an artist or curator participating in a Hirshhorn exhibition. Regularly scheduled free films about artists, films by artist-filmmakers, and matinees for young people continued to be popular and significant aspects of the museum's outreach to the public.

The National Air and Space Museum maintains the largest collection of historic air and spacecraft in the world. It is also a vital center for research in the history, science, and technology of aviation and spaceflight. The museum continues to develop new exhibitions to examine the impact of air and space technology on science and society. Two exhibitions now in the planning stages will focus on the future of space exploration and on the underlying scientific principles of flight.

On January 29, 1990, Secretary Adams announced the Smithsonian Board of Regents' reaffirmation of a previously stated preference for Washington-Dulles International Airport as the site for the proposed extension of the National Air and Space Museum. The museum's staff has begun detailed planning for the extension.

Research and Publications

The museum has four research departments. The Department of Aeronautics is concerned with the history of aviation. The Department of Space History studies the history of rocketry and spaceflight. Scientists in the Center for Earth and Planetary Studies use data from satellites and planetary probes in research on problems of geomorphology and comparative planetology. And the Laboratory for Astrophysics conducts basic research in infrared spectroscopy of planets, stars, and galaxies and has an active program in the development of infrared instruments to be flown on spacecraft.

In the Department of Aeronautics, Peter Jakab's *Visions of a Flying Machine: The Wright Brothers and the Process of Invention* was published by Smithsonian Institution Press. *The Aviation Careers of Igor Sikorsky* by Dorothy Cochrane, Von Hardesty, and Russell Lee was published to accompany the museum's exhibition marking the centennial of the great Russian American aircraft designer's birth. The Aeronautics Department welcomed several visiting scholars this year. Lee Kennett, professor of history at the University of Georgia, was Lindbergh Professor and conducted research on World War I aviation. He was succeeded as Lindbergh Professor by Richard P. Hallion from the U.S. Air Force Systems Command, who began a year of study of the history of hypersonic flight. Theodore Robinson, on

detail from the Federal Aviation Administration, continued his work on African Americans in aviation. Retired Air Vice-Marshal Ron Dick of the Royal Air Force focused his research on the Battle of Britain. Two visiting scholars from the Soviet Union, Dmitri Sobolev and Elena Zheltova, shared the International Fellowship.

In the Department of Space History, Frank Winter published *The First Golden Age of Rocketry: Congreve and Hale Rockets of the Nineteenth Century*. Gregg Herken's book *Cardinal Choices: The President's Science Advisors from Roosevelt to Reagan* was finished and submitted to publishers. Tami Davis Biddle has begun to prepare for publication the proceedings of the museum's ongoing series of lectures and symposia on "The Legacy of Strategic Bombing." David DeVorkin is working on a new book, *Science with a Vengeance: The Origins of Space Science in America*, and Allan Needell has nearly completed a book on Lloyd Berkner and the development of American science in the postwar period.

Research in the Center for Earth and Planetary Studies (CEPS) has focused on surface changes due to desertification and other arid zone processes in Africa, structural deformation on the Earth and the terrestrial planets, and the evolution of planetary surfaces. James Zimbelman and Robert Craddock are using high-resolution visible and thermal infrared images to evaluate the abundance and distribution of bedrock exposures in the highlands of Mars. Based on a statistical analysis of crater populations, Craddock and Ted Maxwell have found evidence of a planetwide resurfacing event that occurred early in the history of Mars. Thomas Watters discovered that the type of deformation found in the flood basalts of the Columbia Plateau on Earth are common to deformed volcanic plains on Mars and Venus. Scientists at CEPS continued working on the detailed geologic mapping of parts of Mars to be used in the selection of potential landing sites for a future mission. James Zimbelman, with Steven Williams of the Lunar and Planetary Institute, conducted fieldwork and remote sensing studies of the Mojave Desert of California and found that sand transported across drainage barriers along a path more than 100 kilometers in length may be related to climate change.

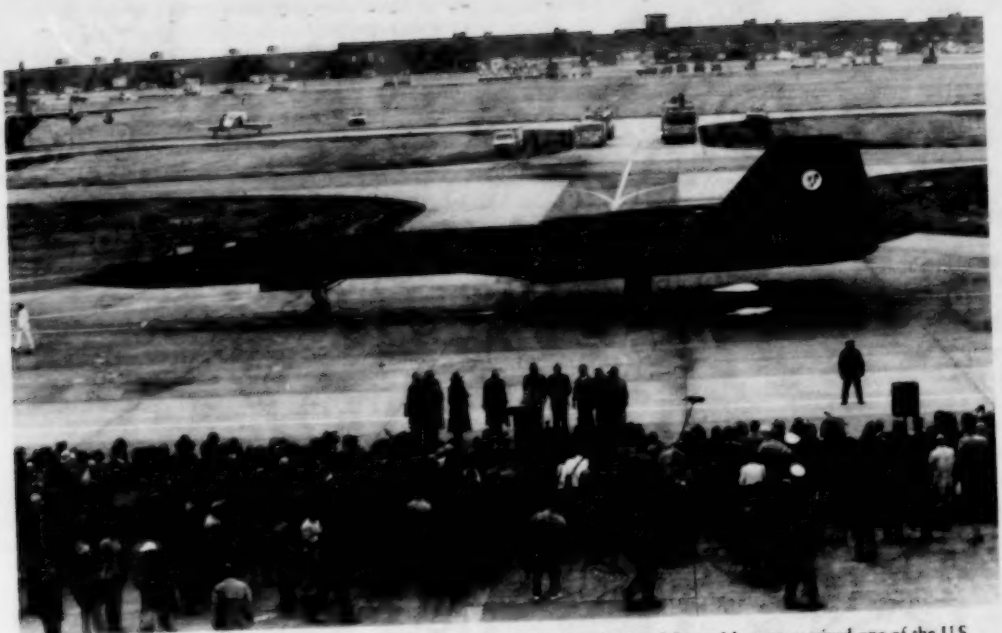
Scientists in the museum's Laboratory for Astrophysics have installed carbon dioxide and far-infrared lasers, cryogenic detectors, and a variety of other test and measurement equipment. They are developing new photolithographic and microelectronic techniques to fabricate high-precision metal mesh reflectors for use in far-infrared space instruments, in a collaboration with the Naval Research Laboratory.

Jeffrey Goldstein is using a laser heterodyne system in an observing program at the Infrared Telescope Facility on Mauna Kea, Hawaii, and at the Kitt Peak National Observatory in Arizona. The system is designed to measure wind velocities on Mars, Venus, and Jupiter to an accuracy of 1 meter per second. In collaboration with the National Aeronautics and Space Administration's Goddard Space Flight Center, Goldstein recently made the only absolute wind velocity measurements above the Venus cloud-tops to date and discovered that at those altitudes atmospheric circulation moves in a direction opposite to that of the planet's rotation.

Matthew Greenhouse, in collaboration with the Naval Research Laboratory (NRL), has developed a near-infrared Fabry-Perot spectrometer to image and study supernovas (exploding stars) in galaxies as part of a program to model the energetics of galaxies and the energy emission by galactic gas and dust. He has observed ionized iron and other atomic species in galaxies using new spectrometers at Kitt Peak and at the Wyoming Infrared Observatory, confirming his model of supernovas as the source for the energy emitted by galactic gas.

Museum Director Martin Harwit is a facility scientist for the Infrared Space Observatory (ISO), to be launched by the European Space Agency in 1993. He is also a coinvestigator on the Submillimeter Wave Astronomy Satellite, a joint program with the Smithsonian Astrophysical Observatory, also scheduled to begin in 1993.

Howard Smith, chairman of the Laboratory for Astrophysics, is a coinvestigator on ISO. He is studying the strong outflows of mass in symmetrically opposite directions associated with very young stars and, in collaboration with NRL, has observed a variety of these sources with new imaging infrared arrays coupled to Fabry-Perot spectrometers. He has discovered an extended region of molecular hydrogen affected by shock waves in a ring around one new source and has developed a theoretical model for the ionized gas in these sources.



On March 6, 1990, at Washington-Dulles International Airport, the National Air and Space Museum received one of the U.S. Air Force's newly retired SR-71 supersonic reconnaissance aircraft. The SR-71 made a final record-breaking 68-minute flight from Palmdale, California, to Dulles Airport. (Photograph by Carolyn Russo Nash)

During 1990, three visiting scientists worked at the Laboratory for Astrophysics. David Naylor of the University of Lethbridge, Canada, developed new techniques for maximum entropy deconvolution of Fabry-Perot spectra. Sara Beck of the University of Tel-Aviv analyzed infrared spectra of winds from young stars in the Southern Galactic Plane. Lawrence Cassar of the U.S. Merchant Marine Academy, New York, developed computer models for line emission from ionized gas spectra in outflows.

Exhibitions

The big event of the year was the acquisition by the museum in June of a Soviet SS-20 and an American Pershing II nuclear missile. These two weapons, regarded as the most accurate and hence most threatening of nuclear missiles, were banned by the Intermediate Range Nuclear Forces (INF) Treaty, signed by the United States and the Soviet Union in December 1987. The treaty, the first agreement to ban an entire class of

nuclear weapons, was a milestone in the effort to reverse the nuclear arms race. Only three years ago, missiles of this type were targeted against each other across a divided Europe, but today training versions of the same missiles stand side by side as harmless museum pieces in the Milestones of Flight gallery. The SS-20 was acquired from the Soviet Union in trade for a second Pershing II missile after long and complex negotiations with the Soviet Union, initiated in 1988 when the museum learned that the INF Treaty permitted both nations to retain several disarmed missiles for static display. An accompanying exhibition, "Trust but Verify: The Intermediate-Range Nuclear Forces Treaty," opened in June in Space Hall.

A new exhibition in the Air Transportation gallery, titled "Commuting in the Modern Manner: The Grumman Goose Amphibian," features the colorful yellow-and-black airplane designed in the "airminded" 1930s for personal transport. While the vision of "an airplane in every garage" never quite materialized, the Goose did become a stylish means of transportation for the well-heeled commuter and eventually filled many other roles worldwide. Some of them are still flying today.

The museum also opened an exhibition titled "The Aviation Careers of Igor Sikorsky" to mark the centennial of the birth of the famed aircraft designer. In Russia before the Revolution, Sikorsky created the first four-engine airplanes. Later, in the United States, he developed flying boats (including the famous Pan Am "Clippers") and in 1939 the first practical single-rotor helicopter, the VS-300. One of these machines, lent by the Henry Ford Museum and Greenfield Village, is central to the exhibition.

British artist Rowland Emett's whimsical flying machine, *Pussiewillow II*, has long been a favorite of museum visitors. Aficionados of Emett's contraptions had particular reason to rejoice when the museum opened "Too Late for the Past, Too Early for the Future: Drawings and Things by Rowland Emett" in the Flight and the Arts gallery.

"Modern Carrier Aviation: Seapower in a Changing World," which opened in the Sea-Air Operations gallery, traces the development of the aircraft carrier and the role it plays in maintaining the balance of power in the modern world. It is part of a major upgrading of the simulated carrier ready room, navigation bridge, and air traffic control center.

New information on Venus, Mars, and Neptune was added to the Exploring the Planets gallery. Notable additions include spectacular images of Neptune and Triton returned by Voyager I in 1989 and a specimen of a so-called SNC meteorite, recovered in Antarctica and believed to have come from Mars. In September, the exhibition "Modern Turbine Engines" was added to the Jet Aviation gallery. It features a CFM International CFM56-2 turbofan engine and a Pratt & Whitney Canada PW123 turboprop engine. In November, the exhibit of the German V-2 missile was updated and expanded in Space Hall.

Work is continuing on the Visitor Information Center in the South Lobby. Visitors can now obtain cassette tours of the museum in foreign languages. New interactive computers provide information on the museum, its galleries, and special events, as well as previews of IMAX films, and information on other Smithsonian museums and Washington attractions.

Paul E. Garber (right), historian emeritus of the Smithsonian Institution, explains how kites were used as experimental devices by early aviation pioneers. This photograph was taken at the ninth annual Open House at the National Air and Space Museum's Paul E. Garber Preservation, Restoration and Storage Facility in Suitland, Maryland, which drew about 15,000 visitors during the last weekend in April.

Collections

During 1990, the museum's staff at the Paul E. Garber Preservation, Restoration, and Storage Facility restored

three significant engines that will contribute to the interpretation of World War I aviation. A British Bentley BR II, a German BMW III A, and an American Liberty V-8 will be exhibited in the new World War I gallery when it opens in 1992, along with a French Voisin Model 8 bomber, which is being restored by two museum specialists. A Pfalz D-XII is also being refurbished for this gallery.

Work continues on the restoration of the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima. The rear fuselage is near completion, alongside the fully restored forward fuselage. Two of the four engines are completed, with one being treated for the Smithsonian by colleagues at the San Diego Aerospace Museum. Restoration continues on two other World War II aircraft: an Aichi Seiran Japanese submarine-borne seaplane that was designed to bomb the Panama Canal, and a British Hawker Hurricane. The Hurricane's Rolls Royce engine has been refinished and awaits installation.

The museum's archives acquired 75 collections, including the significant Cliff Krainik ballooning collection of nineteenth- and twentieth-century photographs and memorabilia. The archives also received the personal papers of barnstormer and aviation administrator Alexis McMullen. The film archives acquired 100 new items. Side one of the museum's seventh archival videodisc, containing 50,000 photographs of aircraft, lighter-than-air vehicles, and aircraft restored by the Smithsonian, was readied for release.

The Air Force delivered an SR-71 reconnaissance aircraft to Washington-Dulles International Airport for the museum in a record-breaking 68-minute cross-country flight. Other significant additions to the collections included a Piper Apache aircraft and a set of chromolithographs titled "The Trouvelot Astronomical Drawings."

National Museum of African Art

The National Museum of African Art, the only museum in the United States devoted to the collection, study, and exhibition of African art south of the Sahara, maintained an active exhibition schedule and acquisition program this year.

Exhibitions

A major loan exhibition, "Icons: Ideals and Power in the Art of Africa," explored the ways African peoples have depicted and interpreted 5 iconic representations and included 125 outstanding works dating from the eleventh to the late twentieth century. The museum produced a 25-minute film that explores two dynamic forms of art in Mali. An illustrated catalogue, written by guest curator Herbert M. Cole of the University of California at Santa Barbara and published by Smithsonian Institution Press, accompanied the exhibition.

In May, "Yoruba: Nine Centuries of African Art and Thought" went on view. This exhibition of 100 exquisite Yoruba objects was organized by the Center for African Art in New York. Archaeological loans, some of which had never been seen outside of Nigeria, were made possible by Nigeria's National Commission for Museums and Monuments. Henry Drewal of Cleveland State University and John Pemberton III of Amherst College were the exhibition curators.

"The African Desert, 1975–1977: Photographs by Bernard Plossu" featured black-and-white and color photographs of the Sahara. "The Essential Gourd," a selection of 75 decorated gourds from northeastern Nigeria, was organized by the Museum of Cultural History at the University of California at Los Angeles. These exhibitions complemented the "Permanent Collection of the National Museum of African Art" and "Royal Benin Art in the Collection of the National Museum of African Art."

Acquisitions

One of the museum's most significant acquisitions, a wood protective figure by the Teke peoples of the Republic of the Congo, was made possible through a grant from the James Smithson Society. A nineteenth-century throne of the Hehe peoples of Tanzania, carved

in the form of a female torso, was a major gift to the museum.

Education

The museum's educational programs reach thousands of adults and children each year. Programs ranged from courses taught by scholars of African art to film series. The U.S. premiere of the film series, "Things Fall Apart," based on the highly acclaimed novel by Nigerian author Chinua Achebe, reached its conclusion in December 1989. "African Reverberations: Films about Africa and the New World" explored the complex ties that bind African and African American creativity and cultures.

A grant from the Smithsonian Women's Committee funded the development of educational materials and programs for deaf and hearing-impaired visitors. The installation of a telecommunications device for the deaf and the production of several open-captioned films are part of the museum's continuing commitment to make the museum accessible to all visitors.

Research

The Eliot Elisofon Archives, a major research resource in African art, history, and culture, strengthened its historical holdings. The most important acquisition was a collection of more than 400 vintage postcards of Africa documenting costume, architecture, and celebrations. This year, the museum appointed Christraud M. Geary as research curator of the archives. A former Rockefeller Fellow in the Humanities at the museum, Geary came to the archives from Boston University.

Among the topics being researched by curatorial staff are Central African pottery and African utilitarian objects, subjects of forthcoming permanent installations. Continuing research on the Nigerian master carver, Olowe of Ise, will result in the first monograph devoted to a traditional African artist. Museum research in progress this year also focused on the development of a film on the art and architecture of an African nomadic people, the Gabra of Kenya.

A volume published this year is the result of a scholarly symposium organized by the museum in 1987. *African Art Studies: The State of the Discipline* includes revised and expanded research papers on the history and future of African art studies.

Conservation

The museum's conservation department completed its study of West African iron objects. Research by postdoctoral fellow Janet Schrenk continued the technical analysis of the museum's famous Benin bronze collection.

National Museum of American Art

The National Museum of American Art (NMAA) is committed to the acquisition, preservation, study, and exhibition of American painting, sculpture, graphic arts, photography, and folk art. As the largest museum of American art in the world, NMAA houses almost 35,000 objects. The Renwick Gallery, a curatorial department of the museum, collects and exhibits American crafts and decorative arts. The museum also maintains Barney Studio House as a period home open for tours by appointment.

Through its collections, the museum is redefining American art to include those cultural traditions that have been excluded in the past, such as the work of minority and self-taught artists. The museum and the Renwick Gallery now have the finest collections of minority artists of any general museum, exemplified by a growing African American collection, Hispanic American art, the extensive Hemphill collection of historic and contemporary folk art, and other recent acquisitions.

Taxis line up at the 8th and G Streets entrance of the National Museum of American Art on September 14 for a reception that introduced 400 of the Washington area cab drivers to the museum. (Photograph by Gene Young)

Exhibitions

Outstanding among the 18 special exhibitions mounted during this fiscal year was "Albert Pinkham Ryder," the largest and most complete review ever assembled of work by this nineteenth-century artist, who has been called America's "greatest painter of the imagination." The exhibition included a section on Ryder forgeries and another section that explored the problems of conserving the artist's many-layered, imaginative, gemlike paintings. A definitive 344-page book by Elizabeth Broun, director of the museum and organizer of the exhibition, explored Ryder's often misunderstood literary themes, clarified many little-known aspects of his career, and created a new list of accepted authentic works. To celebrate the opening of the Ryder exhibition, four artists participated in a symposium on the tradition of personal expression in American painting.

"Made with Passion: The Hemphill Folk Art Collection of the National Museum of American Art" provided a showcase for 199 objects, nearly half of the Hemphill collection recently acquired by NMAA. The collection includes both nineteenth- and twentieth-century objects created by people of many ethnic backgrounds and from all parts of the nation. The exhibition was a tribute to the American ability to take what is at hand and create delightful, personal, and often profound visual statements. It was also a manifestation of NMAA's expanded commitment to all forms of visual expression, including those perceived as outside the mainstream of American art. An extensive interpretive program helped visitors understand the motives and ideas of folk artists.

Another distinguished exhibition was that of 120 works by photographer Irving Penn, coorganized by NMAA and the National Portrait Gallery and shown in both museums. The NMAA portion featured new acquisitions that included portraits, fashion photography, still lifes, nudes, ethnographic portraits, and recent photographs of animal skulls. The exhibition and accompanying illustrated catalogue were supported by USAir.

Two exhibitions of drawings highlighted the work of Joseph Stella and George Caleb Bingham, artists widely divergent in time, subject, and technique. In addition to special exhibitions, the museum opened two new galleries devoted to African American art of the nineteenth and twentieth centuries. The museum frequently shares

its exhibitions with other museums and university galleries in the United States and abroad. In fiscal 1990, as many as six exhibitions traveled at one time in places as diverse as Iowa, Florida, Maine, Minnesota, and the Netherlands.

Renwick Gallery

The highlight of the Renwick Gallery's exhibition program this year was "Masterworks of Louis Comfort Tiffany." Organized by NMAA for the Renwick Gallery, it was generously supported by Tiffany & Co. and attracted more than 230,000 visitors—a record number. The 65 works, many lent for the first time by private collectors, included leaded glass windows, ceramic vases, lamps and chandeliers, enameled and jeweled objects, mosaic works, wood containers, paintings, and watercolors. The exhibition underscored Tiffany's extraordinary talents as a colorist and naturalist and his spectacular innovations as a glassmaker. In conjunction with the exhibition, the Renwick organized a symposium that explored aspects of Tiffany's decorative art and also presented a series of public lectures. The exhibition later traveled to the Metropolitan Museum of Art in New York City.

"Slave Quilts from the Ante-Bellum South," an exhibition organized by the Museum of American Folk Art in New York City, featured 25 quilts and five related pieces of furniture that demonstrated the skill, creativity, and imagination of slaves and documented their contribution to American folk art. A series of craft demonstrations on succeeding weekends accompanied the exhibition. Another outstanding exhibit at the Renwick was the pottery of George Ohr, a nontraditional potter at the turn of the century. Ohr's work is popular with contemporary collectors because it combines boldness and whimsy.

In an ongoing effort to encourage scholarly activities at the Renwick, two scholars were awarded the third annual James Renwick Fellowships in American Crafts. These in-residence fellows conducted research on aspects of contemporary American ceramics and their historical antecedents.

With the assistance of the Smithsonian's Collections Acquisition Program, the James Renwick Alliance (the Renwick's support group), and other sources, the gallery expanded its burgeoning collection of contemporary crafts. The new acquisitions include works by such outstanding artists as Jere Osgood, Daniel Jackson, and Robert Arneson.

Acquisitions

Several significant acquisitions augmented the museum's collection of more than 35,000 objects during 1990. Three important additions are outstanding examples of American sculpture. Louis Jimenez's *Vaquero*, installed at the entrance to the museum, displays all the excitement of bronco busting and unites the Mexican origins of the cowboy persona with a glittering consumer culture. *Vaquero* was a gift of Judith and Wilbur L. Ross, Jr., Anne and Ronald Abramson, and Thelma and Melvin Lenkin.

In March, the museum unveiled *Singing Head* by Elizabeth Catlett, one of the country's foremost black sculptors and an outspoken advocate of popular taste and needs in aesthetic matters. A small, representative selection of Catlett's sculpture from Washington, D.C. area collections was on view in the museum lobby through March along with *Singing Head*.

Ernest Tino Trova's *FM/5' AWF #3* represents the artist's recapitulation of his "Falling Man" sculpture series, with its title an abbreviated reference to that series and to a subgroup devoted to "A Walking Figure." Trova's work reflects his interest in the dream-inspired images of surrealism and corresponds both to pop art's simplified surfaces and to industrial design.

A special strength of the museum is its collection of African American art from the nineteenth century through the present, which was dramatically enhanced during 1990 by the acquisition of paintings by Lois Mailou Jones, Romare Bearden, Jacob Lawrence, and Frederick Brown. Other acquisitions include works by twentieth-century artists Arthur Dove and George LeGrady and photographer Mark Klett. In honor of NMAA's exhibition of the work of Man Ray, *Paysage Mauve*—an early watercolor by the artist—was donated to the museum by the Man Ray Trust. Also of significance were the acquisitions of two rare examples of nineteenth-century painting: *The Trial of Red Jacket* by John Mix Stanley and Washington Allston's *Hermia and Helen* (1818).

Research Resources and Activities

The museum continues to develop new and unique data bases that are made available to researchers from a variety of disciplines. The Inventory of American Sculpture continues to grow, with 5,000 records added during 1990. A mailing to 1,000 corporate collectors continued solicitation of new information on outdoor sculpture throughout the United States. Extensive preparation culminated in the transfer of the first of 260,000 records of the Inventory of American Paintings into the Smithsonian Bibliographic Information System (SIBIS).

The museum's Photograph Archives received approximately 10,000 new prints from the Peter A. Juley and Son Collection. With assistance from the Research Resources Program, the museum began printing images from its Walter Rosenblum Collection. The negatives were produced by Rosenblum, a freelance photographer whose clientele included galleries, artists, and collectors in New York from the postwar period through the early 1960s.

To celebrate the 20th anniversary of NMAA's scholars program, a symposium—"Hindsights and Insights: Scholarship in American Art, 1970–1990"—focused on new methodologies and cultural perspectives that have developed over the past two decades. Thirty Smithsonian fellows and visiting scholars were present, representing universities across the United States, as well as France and Australia.

Twenty-four students representing 17 states and the District of Columbia participated in this year's Intern Program. An increasing number of students from abroad are applying for internships; this year, two interns came from Japan, two from Germany, and one from Italy.

The annual Charles C. Eldredge Prize for outstanding scholarship in the history of American art was established by the American Art Forum, a patrons' support organization of NMAA, in honor of the former director of the museum. This year's joint recipients of the $2,000 prize were Alan Trachtenberg, professor of American studies and English at Yale University, and Michael Fried, professor of the history of art and director of the Humanities Center at the John Hopkins University.

Outstanding works from the museum's wide-ranging publications program included *Photography of Invention: American Pictures of the 1980s* (copublished with MIT Press) and an NMAA brochure on the work of sculptor Paul Manship. Both received awards of excellence from the American Federation of Arts. Receiving an Award of Distinction from the American Association of Museums was the museum's scholarly journal *Smithsonian Studies in American Art*, copublished quarterly with Oxford University Press. Copublished with Smithsonian Institution Press was *Made with Passion: The Hemphill Folk Art Collection in the National Museum of American Art*, which appeared in conjunction with the Hemphill collection exhibition. *Visual Poetry: The Drawings of Joseph Stella* was also published by Smithsonian Institution Press for the exhibition of the artist's work.

Collections Management

More than 36,000 records of the museum's permanent collection were transferred into a new multifile data base. Staff efforts were devoted to defining standards for recording information, converting text from upper to mixed case, resolving problems caused by ambiguous and incomplete data, and consolidating variant artist names.

Education and Public Programs

The Office of Educational Programs continued to expand its public programs and educational endeavors, especially in the area of wider audience development. For Black History Month, NMAA presented "The Storyteller," a performance that examined the morals, values, and survival techniques of African Americans during the colonial period; an illustrated lecture, "The Inspirational Sculpture of William Edmondson," and a program of poetry, stories, and song about Martin Luther King Jr., Harriet Tubman, Malcolm X, and other black leaders called "Wake 'em 'n' tell 'em." Asian/Pacific American Heritage Week was celebrated by a demonstration of Japanese brush and wood block painting. For Hispanic Heritage Month, NMAA offered folk art demonstrations by two Hispanic American artists and a lecture on Hispanic art by Luis Cancel, director of the Bronx Museum, New York.

Outreach activities included participation in the D.C. Cultural Consortium collaboration with the Martin Luther King Library for the Blind and Physically Handicapped and design of an intergenerational art program for Iona House Health Center and the Mater Amoris Montessori School. A new docent recruitment program attracted many minority candidates.

In conjunction with the special exhibition "The Patricia and Phillip Frost Collection: American Abstraction 1930–1945," NMAA presented a panel discussion, lectures, a family mask-making workshop, and a ballet performance by the Amherst Ballet Theater. Two thousand people attended a Family Day celebration held for the exhibition "Treasures of American Folk Art from the Abby Aldrich Rockefeller Folk Art Center," featuring music, dancing, workshops, and a magic show.

A symposium organized by the museum and the Smithsonian Conservation Analytical Laboratory explored conservation issues and technical studies related to the Albert Pinkham Ryder exhibition. Educational resource materials developed in 1990 included a tour booklet, a teacher guide to the Irving Penn exhibition, a family activity guide for the Rockefeller folk art exhibition, an art quiz to be sold in the museum shops, a student handbook for the Hemphill folk art exhibition, and slides and text for art curricula in the Fairfax County, Virginia, and Prince George's County, Maryland, school districts. A two-month Career Awareness Program was developed for 15 high school students from the District of Columbia public school system, and special activities were inaugurated for four D.C. inner-city schools.

National Museum of American History

In 1989–90, the National Museum of American History (NMAH) celebrated 25 years of bringing American history to the American people. In this silver anniversary year, the museum opened its largest exhibition to date, "Information Age: People, Information, & Technology." As it has for the past six years, the museum continued rebuilding itself from the inside out, closing sections of the building in succession for a complete renovation of the heating, ventilating, air conditioning, and fire-protection systems—without closing its doors to the public. In October, Roger G. Kennedy celebrated his 10th anniversary as director.

Exhibitions

"Information Age," a 14,000-square-foot exhibition that traces the evolution of information-processing and communications technologies from the 1830s to the present, opened on May 9, 1990. Through the presentation of more than 700 artifacts, nearly as many graphics, films, radio recordings, more than 40 computer-driven video stations, and a 12-screen "videowall," the exhibition helps visitors explore how information technology has changed our society during the past 150 years. The objects on display range from one of Samuel F. B. Morse's earliest telegraphs and a piece of the first transatlantic telegraph cable to modern personal computers and an industrial robot. In its use of sophisticated state-of-the-art technology, "Information Age" is the most ambitious interactive show the Smithsonian has ever done and a revolutionary approach to alternative learning in museum exhibitions. Visitors can talk over a telephone wire used by Alexander Graham Bell, analyze their fingerprints with computers, and touch a video screen to ask questions of famous inventors. At the entrance to the exhibition, visitors pick up brochures bearing individual bar codes. The brochures let visitors choose among interactive workstations throughout the exhibition and print out a personalized record of their visits and their activities as they leave.

"Information Age" received approximately $10 million in financial support and equipment from a consortium of corporations. More than 500,000 people visited the exhibition in its first four months.

The museum opened 16 other exhibitions this year, including "From Parlor to Politics: Women and Reform

in America, 1890–1925," which explored how women of the Progressive Era led the fight against overcrowded cities, poverty, alcoholism, child labor, public health hazards, poor working conditions, and other emerging social problems. "Quilts: A Selection from the National Collection" displayed 28 quilts made of silk, velvet, wool, satin, and even bits of old military uniforms and described the lives and talents of the people who made them, from young girls and grandmothers to a soldier stationed in Alaska and a British seaman. "Go Forth and Serve: Black Land Grant Colleges Entering a Second Century" examined the long history and contributions of black land grant colleges, and "VSJ—Varrio San José: Scenes from an Urban Chicano Experience," an exhibition of photographs by Miguel Gandert, depicted contemporary Hispanic life in an Albuquerque, New Mexico, neighborhood. "Icons of Invention," an exhibition of American patent models, was organized by NMAH and displayed at the National Portrait Gallery, which is located in the Old Patent Office Building. The exhibition marked the 200th anniversary of the establishment of the U.S. Patent Office and was supported by grants from the Foundation for a Creative America and the Association for Japan–U.S. Community Exchange.

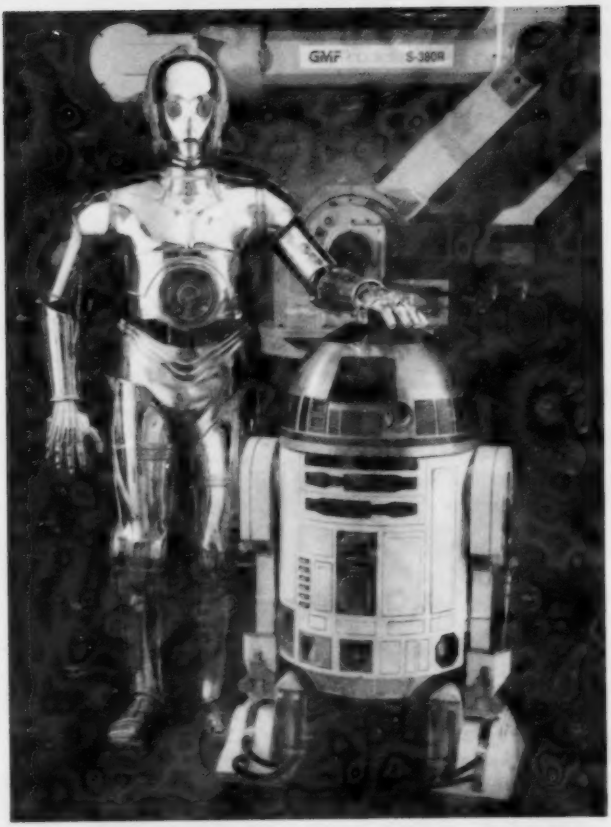
Collections

From a dragster to a silver tea service, the museum this year added thousands of objects to its collections. Among these are the Edward Orth World's Fair Collection, which includes more than 3,000 objects from the 1939 fair in New York City and a large quantity of archival material. The addition of these artifacts gives the museum one of the world's most comprehensive holdings of materials on this fair. Benny Goodman's clarinet; a Yamaha computer-driven piano, one of the first of its kind; and the Eubanks Collection of 150 photographs documenting the origin and evolution of the Black Panther Party in Oakland, California, also joined the collections. Other acquisitions include the Sentry Tachs & Gauges Olds Cutlass Funny Car, winner of the 1988 National Hot Rod Association Funny Car Class championship, donated by Bruce Larson; the flag of the Second South Carolina Regiment, made in 1776, captured by the British in 1779, and purchased from England jointly by the Smithsonian and the state of South Carolina; a 1963 prototype computerized axial tomography (CAT) scanner, developed by A. M. Cormack and donated by Tufts University; and a 1921 Ford Model T mail car equipped with skis and tanklike treads for mail service in the winter, used in Central Square, New York, between 1921 and 1930.

Part of the responsibility of collecting and exhibiting the material heritage of the American people is the work of collections management and preservation. Cataloguing, insuring, moving, lending, shipping, storing, and tracking objects all fall under the purview of the Office of the Registrar. Appropriate facilities are the first step in preserving collections. In fiscal 1989–90, teams of staff from the registrar's office, curatorial departments, the Division of Conservation, and the Office of the Building Manager removed more than 70,000 objects from storage and display as part of the museum's master plan for the reinstallation of exhibitions and the renovation of the building.

To make way for the new Experimental Gallery in the Arts and Industries Building, several thousand objects in the 1876 Centennial exhibition were returned to lenders or to storage or placed on exhibit in NMAH. Other members of the registrar's staff concentrated on preparing and filling an additional 12,000 square feet of leased warehouse space for objects displaced by renovations at the museum. Financial restraints slowed asbestos removal and renovations of other storage facilities, although even in these buildings objects needed for exhibitions or loans were cleaned and transferred. The Office of the Registrar also supported the processing of 28,850 acquisitions and more than 5,600 loans to 40 states and 3 foreign nations; supported 8 exhibitions of the Smithsonian Institution Traveling Exhibition Service; prepared and packed toys, dolls, textiles, patent models, and other objects for the move to the Museum Support Center in Suitland, Maryland; and completed work on separating and rehousing files held by the Smithsonian Archives to make original collections documentation readily available to the museum. A new Master Plan for Accountability provides detailed timelines and resource allocations for reducing backlogs in registration and cataloguing, as well as for improving collections storage and accessibility.

In addition to the everyday work of keeping the mu-



C-3PO and R2-D2, characters from the film *Star Wars*, stand with a robot used to manufacture automobiles. All three are on display in "Information Age: People, Information & Technology" at the National Museum of American History. (Photograph by Laurie Minor)

seum's computers up and running, the Computer Services Center (CSC) is an indispensable partner in collections management. CSC and the registrar's office jointly designed and produced the museum's in-house data base, called the Local Collections Information System. New features added this year include computerized accession memoranda and catalogue cards, as well as improvements in security. The portable system is especially useful for work away from the museum and for tracking the movement of collections. CSC also completed its initial work on the museum's Information Architecture Project, a detailed, multiyear study of interrelated functions within the museum, and began using the results to develop software for a comprehensive data base for collections research and management, the Collections Information System. CSC also completed development of a computer system to process older Smithsonian inventory files on-line on the museum's central minicomputer. The new system increases accessibility of the records by allowing the museum to withdraw files from the Smithsonian central computer system. The work began with the transfer of records of 30,000 objects in the textiles collection.

Exhibitions, the movement of collections, and time itself take a toll on every museum object. Counteracting the wear and tear on artifacts is the work of the museum's conservators. The Division of Conservation completed preparations for a new laboratory to provide for the needs of more than 40,000 textile and costume objects, including historic flags, uniforms, and the first ladies' gowns. Construction is scheduled to begin in January 1991. The new laboratory will allow some acceleration of a pilot project for the rehousing and stabilization of more than 400,000 objects in the graphic,

archival, and photographic collections, an effort that will extend well into the next century. More than 7,700 documents, maps, and World War II posters and 4,500 ship plans and drawings were surveyed, rehoused, and stabilized by conservation and curatorial division staff. Some 2,250 objects required intensive or specialized treatment in the laboratories of the division, including George Washington's tent, which needed 450 hours of painstaking cleaning using custom-fabricated rollers and a vacuum suction table, and the massive early computer ENIAC, which required 530 hours of preparation for the "Information Age" exhibition.

The museum's Archives Center catalogues and cares for large collections of photographic and paper artifacts and develops new resources for scholars and researchers. Two important collections on the history of the piano in America were prepared for research use this year: the photographs, manufacturing records, and related artifacts of Sohmer & Company, a New York City piano manufacturer, and of the Pratt-Read Corporation, a Connecticut manufacturer of ivory keys and piano actions, span the years 1839 to 1989 and document the technical and social history of this industry. With funds from the Smithsonian's Research Resources Program, the center began organizing the Underwood & Underwood collection of 28,000 glass-plate photographs and preparing them for reproduction on videodisc. The Center for Advertising History, part of the Archives Center, completed documentation projects on Campbell's Soup and Cover Girl advertising and began a similar project on Nike advertising. A new corporate sponsorship program has brought additional resources for this unit's research, documentation, and interpretation of advertising history. The Archives Center hosted an oral history conference of 25 engineers, programmers, and marketing representatives for the UNIVAC computer, one of the most significant information processing innovations of the 1950s. The recorded recollections of these computer pioneers will be available for researchers, adding substantially to the museum's strong collections in this field. Funding from the Unisys Corporation and support by the Charles Babbage Institute at the University of Minnesota made the conference possible.

In the work of relocating collections, installing exhibitions, and renovating the museum, the Office of the Building Manager always plays a part. The office bears the major responsibility for planning and overseeing the museum's master renovation plan, as well as for scheduling and coordinating lengthy projects such as the removal of asbestos and the replacement of transformers containing PCBs. As a measure of distinction and gratitude for their service and support, the rigging workers in the building manager's office this year received the first annual Director's Award.

Research and Scholarship

The research of curators and other staff members lays the groundwork for the museum's exhibitions, publications, and other programs. Books published this year by museum staff include *Greek Revival America* by Roger G. Kennedy, museum director; *Men and Women: A History of Costume, Gender, and Power* by Barbara Clark Smith and Kathy Peiss; *Street Railways and the Growth of Los Angeles* by Robert Post; and *Icons of Invention: American Patent Models* edited by Barbara Janssen.

In December 1990, the Department of the History of Science and Technology received a $4 million grant from the American Chemical Society for "Science in American Life," a major exhibition on the historical relationship between science and society to open in 1993. Research and planning for that exhibition are under way. A four-person team traveled to Guyana, South America, on a goodwill mission for the Smithsonian's Office of International Relations and the U.S. Information Agency. The trip involved surveying—and repairing where possible—that country's tower clocks, rare survivors in this hemisphere of nineteenth-century "public" clock technology. The department's American Indian Program collaborated with Hampton University in Hampton, Virginia, on an exhibition, publication, and symposium titled "To Live and to Learn: Indian Education at Hampton Institute, 1870–1923." As part of the Smithsonian Videohistory Program, department staff produced a video interview with two of the leading twentieth-century manufacturers of small arms, Eugene Stoner of the United States and Mikhail Timofeyevich Kalashnikov of the Soviet Union.

Here and abroad, scholars in the department delivered lectures and papers that reflect the breadth of their continuing research. Ramunas A. Kondratas traveled to

Moscow in March to deliver a lecture on "The Medical Collections of the Smithsonian Institution." Audrey Davis spoke on "Medical Historical Museums" at the Johns Hopkins History of Medicine Colloquium. G. Terry Sharrer gave the keynote address, "Virginia Agriculture, A.D. 2020," at a conference organized by Virginia Polytechnic Institute and State University, and Paul F. Johnston spoke at the Explorers Club in New York City on "Treasure Diving: Nautical Archaeology and the Sale of Artifacts."

The Department of Social and Cultural History this year focused its efforts on broadening the audience it serves and expanding twentieth-century holdings and research activities. The accomplishments of Bernice Johnson Reagon, who received a John D. and Catherine T. MacArthur Foundation Fellowship, epitomized these activities. With the added flexibility the award provided, she intensified her documentation and collection project, which centers on African American communities in Southwest Georgia and the Washington, D.C., metropolitan area. Her approach to collecting through case studies prompted the department to study this technique as a model for cooperative collecting of culturally diverse twentieth-century artifacts. The Division of Musical History echoed this twentieth-century orientation by sponsoring and developing a working agreement with the Rhythm and Blues Foundation, which publicly recognizes the contributions of older performers and seeks to collect related artifacts. The Chamber Music Program released a new set of recordings of the music of J. S. Bach, performed on original instruments and published to critical acclaim both in the United States and Europe. In May, the Division of Costume hosted the annual meeting and symposium of the Costume Society of America.

As a result of critical evaluations of the effectiveness of older exhibitions, "After the Revolution: Everyday Life in America, 1780–1800" has been temporarily closed for content and design revisions. A special "children's track" for younger visitors is under development for "Field to Factory: Afro-American Migration 1915–1940." The lessons learned from these exhibitions will be incorporated into future efforts, including a reinterpretation of the first ladies exhibition, which will place the lives of these important women in a broader social and political context, and a large permanent exhibition, "Land of Promise: America in the Nineteenth Century." Staff members from both of the museums' curatorial departments and the Department of Public Programs continued work on "American Encounters," an exhibition being readied for the Columbus Quincentenary.

The National Philatelic Collection organized several exhibitions this year, including the largest display of philatelic rarities ever presented outside the museum, for the World Stamp Expo held in late 1989. For the International Congress of the Universal Postal Union, staff prepared a 24-case exhibition that also featured six historic vehicles from the museum's collection. "A Plate Proof Premier" treated the evolution of the collection's unique holdings of certified plate proofs used in the creation of U.S. postage stamps since 1894, and "A Black Contribution to Postal History" highlighted the service of John T. Jackson, Sr., the oldest black postmaster in the United States in the 1940s. In the area of public programs, more than 30 different slide-lectures produced by the collection were lent free of charge to more than 500 civic groups, philatelic organizations, and postal employee groups this year.

The past year was difficult for the National Numismatic Collection (NNC), with the death of Curator Raymond Joseph Hebert, who since 1971 had developed the Oriental section into one of the world's leading collections. This loss and the departure of two collections managers brought to a halt planned international projects on Russian and Japanese coins. The executive director of the collection, Elvira Clain-Stefanelli, compiled a two-volume catalogue of the exhibition "Rome at War" and started "From the Smithsonian," a column on the NNC that appears in *Coin World*, the world's largest numismatic tabloid. Curator Cory Gillilland completed the manuscript for the first volume in a series on the holdings of the NNC, to be published in 1991. Three traveling exhibitions were arranged with numismatic materials from the NNC, and Gillilland brought to the museum a traveling show titled "Teaching Medallic Art."

Among the four issues of *American Quarterly* published by the Office of Academic Programs was a special issue, "Cultural Criticism in America," which emerged from a joint conference held by the office and the Woodrow Wilson International Center for Scholars in June 1988. This year, the office coorganized and produced the conference "Key to Empowerment? The

Voting Rights Act of 1965" with the museum's Program in African American Culture and the Department of History at American University, Washington, D.C. Assistant Director for Academic Programs Gary Kulik served on the U.S.–Mexico Commission on Cultural Cooperation.

During the past year, the Afro-American Communities Project has conducted research into the relationship between African Americans and the immigrant German and Irish populations during the nineteenth century in Chicago and Buffalo, New York. Project Director James O. Horton and Harmut Keil of the University of Munich delivered a paper on the topic at the March 1990 meeting of the Organization of American Historians in Washington, D.C. The project is also conducting research into the family lives of black seamen in New Bedford, Massachusetts, and Philadelphia during the antebellum years.

The April 1990 publication by Scholarly Resources, Inc., of the 15-reel microfilm set of the Papers of Robert Mills culminated the museum's five-year program to make the writings of the architect of the Washington Monument and other important buildings available for scholarly research. The project involved collaboration with the Universities of Iowa and South Carolina and support from the National Endowment for the Humanities, the National Historical Publications and Records Commission, and other organizations.

Public Programs

In addition to collecting, preserving, investigating, and exhibiting the material heritage of the American people, the museum also seeks to reconstruct more elusive pieces of the past through music, drama, and oral heritage. Highlights of the year's activities in the Department of Public Programs included the Program in African American Culture's presentation of "African American Dance: Beauty, Rhythm, and Power," dedicated to the late Alvin Ailey. The program examined the roots and development of African American dance, its impact on contemporary American dance forms, and the social, psychological, and political basis of popular dance. In celebration of International Women's Month, "No Crystal Stair: African American Women at Work" reviewed the history and status of African American women in the work force. "Deep River: Praise Songs from My People," held in May, traced the influence of gospel music on the development of jazz and included performances by the David Murray Quartet and the Wesley Boyd Gospel Choir. The Jazz in the Palm Court series this year offered performances that focused on the music of Duke Ellington, ranging from a study of Ellington's solo piano work to the influence of his music on tap dancing.

The department's Division of Museum Programs presented more than 100 performances of music, dance, storytelling, films, and evening discussions with Washington, D.C.–area authors. The programs included a two-week series on country dance and song in America celebrating the legacy of English folklorist Cecil Sharp; music of contemporary American classical composers performed by the Twentieth-Century Consort; a tribute to Mabel Mercer and cabaret music featuring singer Margaret Whiting; and a celebration of rhythm and blues music with a performance by Sam Moore of the renowned duo Sam and Dave.

During Super Week, a project funded by the Smithsonian Special Exhibition Fund for expanding visitor involvement with museum exhibitions, the Education Division produced three new interpretive programs, including live drama, demonstration carts, and self-guides for children and families. The division also inaugurated an Exhibition Preview Area to test visitors' reactions to the ideas and display techniques of upcoming exhibitions. Another new effort of the division is an eight-week training program for its 100 weekday volunteers. Through workshops, lectures, and a comprehensive interpreter's manual, the program is aimed at strengthening daily tour and demonstration programs and enlarging the audience they serve. New methods for captioning the audiovisual programs for hearing-impaired visitors were implemented with a grant from the Smithsonian's Special Exhibition Fund. The division also produced public programs on former First Lady Lou Henry Hoover, documentary photography, new trends in manufacturing, and freedom of the press, as well as a week-long Holiday Celebration and a 25th anniversary celebration featuring presentations by museum staff on behind-the-scenes operations.

In times of shrinking federal resources, the museum depends ever more heavily on support from outside the Institution. The Office of External Affairs, which en-

compasses public affairs, special events, and development activities, is charged with attracting financial support for the museum's projects and bringing word of the museum's work to the public. This year proved to be extremely productive with more than 90 press conferences, special fund-raising projects, exhibition openings, and receptions. The Friends of first ladies was created as a support group to raise $2 million for the first ladies exhibition and has been endorsed by each of the living first ladies. The highlight of the group's first event was a visit with Barbara Bush at the White House. The office also organized an event at the Hard Rock Cafe in New York City to announce the creation of the John Hammond Fund for the Performance of American Music. This permanent endowment fund will enable the museum to offer free public performances of a wide variety of American music. Early contributors to the fund, which has an initial goal of $5 million, include Bruce Springsteen and Stevie Ray Vaughan.

Singer Michael Jackson toured the museum this year. Former Prime Minister Takeshita of Japan also paid a special visit, as did dignitaries from Mexico and Gambia. The museum once again hosted the National Endowment for the Humanities Jefferson Lecture reception, as well as a reception inaugurating the premiere season of "Invention," a television series produced by the Discovery Channel in cooperation with the Smithsonian.

National Museum of Natural History/National Museum of Man

The National Museum of Natural History/National Museum of Man (NMNH) is the nation's major research museum, supporting scholarly investigations in anthropology and the natural sciences by 118 staff scientists, by visiting scholars and students from all over the world, and by 31 resident scientists from affiliated agencies with closely related functions (U.S. Department of Agriculture, National Marine Fisheries Service, U.S. Fish and Wildlife Survey, U.S. Geological Service, and National Institutes of Health). The extensive research program, conducted in the field and laboratory, depends heavily on the museum's collection of documented artifacts and specimens of plants, animals, fossils, rocks, and minerals—the largest and most valuable natural history and anthropological collections in the world. The collection now numbers more than 120 million items.

The museum shares its work with the scholarly community through publications, symposia, and scholarly exchanges and with the public through exhibitions, popular publications, public forums, and educational programs. Testifying to the success of the public programs were the approximately 6 million visitors to the museum in 1990, making NMNH by far the most frequently visited natural history museum in the world.

Research

Global Change in Earth History

In conjunction with Earth Day 1990, the museum presented a series of briefings on the history of global change to members of Congress, science administrators, the press, and the public. The talks were organized by a museum research team that is determining the kinds of disruptions terrestrial ecosystems have experienced during the Earth's history. Their data, gathered from the fossil record in museums and research institutes throughout the world, establish that in 400 millon years the Earth has experienced repeated episodes of global warming and cooling, with such consequences as extinction and deforestation.

Leading the team's presentations were anthropologist Richard Potts and paleobiologists Kay Behrensmeyer, William DiMichele, Brian Huber, and Scott Wing. Other museum researchers added perspectives on past

and possible future changes in ocean circulation, ocean productivity, sea level, paleoclimatic influences, and the impact of early humans on terrestrial and marine ecosystems.

Museum volcanologist Tom Simkin is the senior author of "This Dynamic Planet," a five-foot-wide color wall map that shows the Earth's volcanoes, earthquake epicenters, and boundaries and movements of the large tectonic plates that make up the Earth's crust. Published in 1990 by the U.S. Geological Survey in collaboration with the museum, the map is intended as a general reference and as a teaching aid for classroom use. The map and its explanatory text pinpoint nearly 1,450 volcanoes active during the past 10,000 years along with 141,300 earthquakes from as far back as 1897.

The map was generated by computer from data collected by the museum's Global Volcanism Program (GVP), the leading source of information in the world on volcanism. GVP operates the Global Volcanism Network (GVN, formerly SEAN), a unique worldwide reporting network that now includes more than 550 foreign correspondents. GVN reports on eruptions, large and small, are read by tens of thousands of people each month.

Philippine Research

In April and May of 1990, Ernani Menez, director of the museum-administered Smithsonian Oceanographic Sorting Center, in collaboration with four scientists from the Scripps Institution of Oceanography and the University of Utah, collected deep-sea benthic (floor-dwelling) marine plants and invertebrate animals in the Philippines that will be screened for naturally occurring anticancer substances. This work, which was supported by the Smithsonian and the National Cancer Institute, followed the signing of a memorandum of understanding between the Philippine government and the Smithsonian in November 1989, reaffirming past cooperative efforts and promising new collaboration.

Human Ecological History

The museum's Human Ecological History Program seeks to document and place in perspective the turning points in humankind's long history of changing the Earth's environment, from the origin of humans through the agricultural revolution to the development of modern urban life. Highlights of the program include Richard Potts's important research at Olorgesaili in Kenya's Great Rift Valley, which was featured in a March 1990 *Science* article. The site sheds light on one of the most interesting and least understood periods of human evolution—the mid-Pleistocene—when *Homo erectus*, a large-brained hominid species that lived 300,000 to 1.7 million years ago, roamed the region and probably had begun its expansion into Asia and other parts of the world. Potts and his colleagues are in the vanguard of paleoanthropologists who are interested in doing more than just excavating isolated sites of bones and artifacts. His team is digging trenches the entire three-mile length of the site to reconstruct the context of the landscape—climate, plants, and wildlife—in which the hominids lived in an effort to figure out patterns of early human behavior.

In another research finding from the program, Bruce Smith reported in a December 1989 *Science* article that the prehistoric Indians of eastern North America began growing several types of wild plants for food as early as 4,000 years ago and were farming their own native crops for hundreds of years before maize (corn) was first brought here from Central America. This new evidence establishes the region as one of the half-dozen areas of the world where agriculture is now thought to have originated independently and challenges the long-standing belief that North Americans learned farming techniques from their more technologically advanced southern neighbors, who are known to have domesticated corn and squash.

Biodiversity Studies

The museum's Biodiversity Program in Amazonia and other regions of the New World tropics expanded in 1989–90 in response to growing concern about the accelerating destruction of forests and other habitats. A new director, Don Wilson of the U.S. Fish and Wildlife Service, was appointed.

The Biological Diversity of Tropical Latin America (BIOLAT) program, now in its fourth year, is concerned with inventorying, understanding and preserving the species richness of tropical rainforests. Long-term

This team of global change experts at the National Museum of Natural History is working on a project of breathtaking immensity: reconstructing the entire history of plant and animal life on land over the last 400 million years. Kay Behrensmeyer and Martin Buzas are seated at the table. Behind them are, from left, Rick Potts, Dennis Stanford, William DiMichele, Ian Macintyre, Tom Simkin, Brian Huber, and Scott Wing. (Photo by Eric Long)

surveys, in progress in Bolivia and Peru, were extended to Ecuador in 1990. A training workshop in Biological Collecting and Systematics was held in Lima, Peru, in 1990 for 150 Peruvians and Bolivians.

The Biological Diversity of the Guianas (BDG) program, directed by botanist Vicki Funk, completed a series of plant collecting trips in Guiana in 1989–90, including excursions up the Cuyuni and Canje rivers, to the town of Ituny, and to the Rupununi savanna.

The Biological Dynamics of Forest Fragments (BDFF) project, transferred to the Smithsonian from the World Wildlife Fund in 1989, is located at sites near Manaus, Brazil. For a decade, scientists there have studied the changes that occur in the Amazonian rainforest ecosystems of Brazil as human development encroaches. This project is now recognized for its major contributions to the relatively new field of conservation biology. The known history of the forest-clearing and the secondary growth at BDFF sites offer an unequaled opportunity to study the processes involved in habitat fragmentation and forest regeneration.

Arctic Studies Center

The museum's Arctic Studies Center, established in 1988, is dedicated to the study of arctic and subarctic people, cultures, and environments. It serves scholars, the public, and northern peoples and communities throughout the circumpolar world.

In July 1990, the center organized an expedition by a joint U.S.-Canadian survey team, led by museum archaeologist William Fitzhugh, to begin the first stage of a multiyear archaeological study of Martin Frobisher's base camp at Kodlunarn Island, Frobisher Bay, off southeastern Baffin Island in the Canadian Arctic. Frobisher, an Elizabethan explorer, made three voyages to the Arctic between 1576 and 1578 in search of the Northwest Passage and gold, finding neither. As the first English establishment on the soil of the New World and the most significant documented early contact between Europeans and the Inuit, Kodlunarn Island is a site of international historical importance. In addition to investigating the remains of the Frobisher mines and camps, the project will study the impact of early European contact on sixteenth-century Inuit (Eskimo) culture of southeast Baffin Island. Preliminary results from the 1990 fieldwork reveal th[illegible]any Inuit archaeological sites of this period contain extensive evidence of European material goods dating to the Frobisher expeditions.

Other Expeditions and Research Activities

Oceanographer Daniel Stanley continued his long-term investigation of coastal plain subsidence, sea-level rise, coastal retreat, and saline groundwater intrusion in the Nile Delta. He reported in 1990 that the delta is undergoing substantial sinking—as much as one-fifth of an inch per year in the Port-Said region near the Suez Canal—causing serious erosion and invasion of salt water, which is already severely limiting agriculture. This area is Egypt's major agricultural breadbasket for its rapidly growing population, which exceeds 55 million people. Stanley's program, now in its sixth year, is a collaborative effort with 12 other laboratories in North America, Europe, and Egypt to identify those

sectors of the delta that can still reasonably be protected as the changes occur.

In May, the museum made its sixth expedition to Aldabra Island, a remote atoll in the western Indian Ocean accessible only by ship. Considered one of the world's great natural wonders, it harbors the only surviving colonies of the Indian Ocean giant tortoise—a population that has now grown to 160,000—as well as large numbers of other unique plant and animal species. Among the seven scientists on the trip were George Zug and Ian Swingland, who have begun a multiyear study of the tortoise's nesting behavior and rates of growth.

In the Bocas Del Toro Archipelago, a maze of hundreds of biologically unexplored islands, reefs, and mangrove swamps off Panama's northwestern Caribbean coast, museum scientists are discovering extraordinary numbers of relatively newly evolved birds, mammals, reptiles, and amphibians. In the spring, mammalogist Charles Handley led the museum's fourth expedition to this archipelago, including ornithologists, herpetologists, a botanist, and mammalogists.

Notable Publications

Northwest Coast (Smithsonian Institution Press), the ninth in the museum's projected 20-volume encyclopedic *Handbook of North American Indians*, was published in September 1990. The 58 chapters were written by 59 anthropologists and historians. The volume, edited by Wayne Suttles of Portland State University in Oregon, summarizes present knowledge of the environment, prehistory, languages, and environmental relations of the native peoples of coastal Oregon, Washington, British Columbia, and southeast Alaska.

Museum botanist Warren Wagner is the senior author of the two-volume *Manual of the Flowering Plants of Hawaii* (University of Hawaii and Bishop Museum Press). The first such treatise in 100 years, it is a crucial reference work on an island ecosystem in which many of the plant species are becoming extinct.

Guide to the Marine Isopod Crustaceans of the Caribbean (Smithsonian Institution Press), was written by marine zoologist Brian Kensley with illustrations by the museum's Marilyn Schotte.

Creativity of Power: Cosmology and Action in African Societies (Smithsonian Institution Press) contains 12 essays that explore the concepts of power, action, and human agency in African social systems and cosmologies. The volume is coedited by ethnologist Ivan Karp.

Marine zoologist M. G. Harasewych is the author of *Shells from the Sea* (Rizzoli International), which discusses the origin, evolution, and diversity of 600 selected sea shells drawn from the spectacular William D. Bledsoe Shell Collection, donated to the museum in 1988.

Museum mammalogist Louise Emmons wrote the text for *Neotropical Rainforest Mammals: A Field Guide* (University of Chicago Press), the first color-illustrated guide of its kind.

The Mississippian Emergence, edited by archaeologist Bruce Smith, is a collection of essays by 11 leading scholars on the development of the Mississippi Valley Indian cultures in the Midwest and Southeast during the period A.D. 700–1200.

Conferences and Workshops

Museum scholars played a major role in organizing and hosting the Sixth International Conference of the International Council for Archaeozoology, which was attended by 250 scientists from around the world in May 1990.

Fifteen hundred scientists from 39 countries attended the Fourth International Congress of Systematic and Evolutionary Biology in July 1990, cosponsored by the Smithsonian Institution and the University of Maryland. Museum botanists Stanwyn Shetler and Vicki Funk served on the local organizing committee and arranged a symposium on biodiversity.

The second Mexican Bee Workshop was held in April 1990 in Hermosillo, Mexico. Organized by Mexican and U.S. scientists with funding provided by the Smithsonian, the workshops are an outgrowth of a cooperative program on the bees of Mexico started in 1985 with museum entomologist Ronald McGinley as one of the organizers. The 1990 gathering emphasized biological studies, including pollination ecology and nesting biology.

Following a 1989 joint U.S.S.R.-U.S. expedition on a Russian research vessel to unexplored tropical reefs of

the Seychelle Islands in the Indian Ocean, collaborative Soviet-Smithsonian research on marine plants and corals continued. In July 1990, botanists Mark and Diane Littler, who had participated in the Seychelle cruise, hosted a workshop on marine systematics at the museum for four Soviet colleagues. The Soviet group then accompanied the Littlers to the Smithsonian Marine Station at Link Port in Fort Pierce, Florida. The goal of this visit was to survey the unique tropical marine reefs of the Florida Keys, a region particularly important to scientists because of the pioneering work in marine systematics conducted in these environmentally threatened reef areas.

Smithsonian Marine Station

The Smithsonian Marine Station at Link Port, Fort Pierce, Florida, which is administered by the museum, provides a unique opportunity for scientists to study marine organisms. Local marine habitats include mangroves, seagrass beds, mud and sand flats, coral reefs, shallow- to deep-water sandy plains, and the Florida current with its myriad tropical plankton and larvae. These environments enable Smithsonian scientists to conduct systematic, ecological, reproductive, and behavioral studies. In 1990, a five-member scientific committee from outside the Institution reviewed the program of the research station and issued an extremely favorable report.

In one current study at the Marine Station, the museum's Clyde Roper heads a team conducting a long-term investigation of the ecology and diversity of squids, octopuses, and other cephalopods from the near shore to the Gulf Stream waters. This seasonal sampling is examining the distribution and abundance of squid and octopod larvae in relation to temperature, salinity, depth, and oxygen content of oceanic waters, as well as to daily and seasonal variation.

Native American Relations

In July and August 1990, at the annual Comanche Homecoming Powwow in Walters, Oklahoma, and at the Crow Fair Celebration in Crow Agency, Montana, JoAllyn Archambault, director of the museum's American Indian Program, presented to tribal officials photographs of Comanche and Crow cultural objects, as well as copies of all historical photographs of their people in the museum's National Anthropological Archives.

Powwow Committee Chairman Raymond Nauni, Sr., accepts a historic photograph on behalf of the Comanche tribe from JoAllyn Archambault, director of the American Indian Program at the National Museum of Natural History. The presentation, made at the tribe's annual Homecoming Powwow in Walters, Oklahoma, in July, was part of an ongoing project called the Tribal Catalog Series. The project involves tribe members in research efforts on objects, photographs, and paintings at the Smithsonian that are associated with that tribe. (Photograph by Walter Bigbee)

The photo documentation is part of the museum's ongoing Tribal Catalog project. Comanche and Crow tribal members have been of valuable assistance in accomplishing the research and photography. Eventually copies of historical photographs will be provided for all major U.S. tribes represented in the archives.

The passage of the National Museum of the American Indian Act in November 1989 provided for the "Inventory, Identification, and Return of Indian Human Remains and Indian Funerary Objects in Possession of the Smithsonian." As early as 1984, the museum had begun to return objects and human remains for reburial. The largest of these earlier transfers was in 1988 when human remains removed from a cemetery in 1892 by a surgeon collecting for the Army Medical Museum were returned to the Blackfeet of Montana for reburial. The museum, in compliance with the new law, is responding to other reburial requests as received. On July 17, 1990, the remains of 81 Native Hawaiians, identified as coming from the islands of

O'ahu, Maui, Lana'i, and Hawai'i, and unknown sites, were turned over to the Native Hawaiian organization Hui Malama I Na Kupuna O Hawai'i Nei. Remains from another 133 humans from mainland Hawaii are to be returned to a different Hawaiian organization at a future date.

Exhibitions

"Nomads: Masters of the Eurasian Steppe" featured 1,400 objects from nine leading Soviet museums, illustrating the cultures of the nomadic people of the steppes over a period of 3,000 years. The exhibition, organized by the Natural History Museum of Los Angeles County, highlighted gold treasures from fifth- to fourth-century Scythian tombs, colorful costumes, saddles, weapons, and armor.

The customs and everyday life of early Egyptian society between about 4000 B.C. and 2700 B.C. were the focus of "The First Egyptians." Organized by the University of South Carolina's McKissick Museum, Columbia, South Carolina, the exhibition was the most comprehensive exposition of predynastic Egypt to date.

"Life in the Ancient Seas," the first permanent exhibition to focus on prehistoric marine life ever constructed by a major U.S. museum, opened to critical acclaim in May. The hall completes the 15-year renovation of the paleontological exhibits. Among the highlights are an 11-foot walk-around diorama of a Paleozoic Era reef, 2,000 fossil specimens, and a spectacular mural (16 by 120 feet) by the noted artist Ely Kish. Many of the creatures exhibited vanished as a consequence of global change at the close of the Paleozoic and Mesozoic eras.

In "Dinamation: Dinosaurs Alive and in Color," an exhibition that has captivated the younger generation in museums around the world, visitors encountered a variety of animated dinosaurs and other prehistoric creatures in reconstructed natural settings and with sound effects. The exhibition offered a glimpse of 185 million years of evolutionary history from the dawn of the Dinosaur Age to its last days.

As part of a spring-summer dinosaur-fest, the museum presented Jim Gary's whimsical "Twentieth-Century Dinosaurs." Gary uses a welder's torch to transform parts of old automobiles into metallic, brightly colored creatures that resemble prehistoric beasts.

"A Jeweler's Art: Masterpieces from Van Cleef & Arpels," showcased 100 examples of the historical art deco creations of the famed jewelry company. Among the highlights were brooches, bracelets, necklaces, earrings, vanity and powder boxes, watches, evening bags, and special commissions dating from the 1920s through the 1960s.

Two extraordinary gifts were placed on exhibition in the Gem and Mineral Hall. A 396.30-carat kunzite necklace, designed by Paloma Picasso, was a gift from Tiffany & Co., and the Independent Jewelers Association donated an almost flawless 120-pound specimen of Brazilian, transparent smoky citrine (yellow quartz), of extraordinary form, size, and quality.

"Native American Basket Masterpieces," featuring 14 pieces collected by the museum before 1920, as well as 13 contemporary masterworks, is part of the modernization of the Native American halls. Twenty-one tribes are represented by baskets ranging from the simple and utilitarian to exquisitely decorated works designed for ceremonial purposes.

In January 1990, the museum announced a $6 million fund-raising campaign to support the construction of "Geology, Gems, and Minerals," a new hall that will open in 1995. The museum's current geology hall is so outdated that it fails to portray plate tectonics and continental drift, concepts that have revolutionized Earth science. An innovative new design will integrate specimens and processes into a single dynamic educational experience.

Education

Nineteen special weekend presentations of Native American arts and crafts, organized by Aleta Ringlero of the Office of Education, drew up to 1,500 visitors a day. The artists, selected for their excellence in design and execution and their ability to communicate with the public, demonstrated skills reflecting their tribal traditions. Carved Plains-style flutes, beaded dolls, woven baskets, and carved Northwest Coast masks were among the crafts featured.

In January 1990, the American Indian Theatre Company of Tulsa, Oklahoma, came to the museum to present "Legends from the Fire." The troupe's eight actors were students from the fifth grade through junior college and represented different Oklahoma tribes. Five

performances over three days drew standing-room-only audiences of children to Baird Auditorium.

In cooperation with the Global Tomorrow Coalition and the American Institute of Biological Sciences, the Office of Education organized a panel of experts for the day-long forum "Earth Day 1990: Shaping a New Environmental Agenda." Leading experts, including Paul Ehrlich of Stanford University, John Holdren of the University of California, and Smithsonian Assistant Secretary for External Affairs Thomas E. Lovejoy, discussed how problems such as tropical deforestation and climatic change are demanding a reordering of environmental priorities. The event was coordinated by Deborah Rothberg.

The Natural Science Institute for Teachers of Minority Students, a three-week summer program organized by Carmel Ervin, was held in July 1990. Funded by the District of Columbia school system through the Dwight D. Eisenhower Act, this program for teachers of grades 4 through 12 featured instruction on "reading" natural history objects. Twenty-four teachers enrolled in the course, which took them beyond the museum to the Smithsonian's Environmental Research Center and National Zoo, the National Aquarium in Baltimore, and the U.S. Geological Survey.

Nine Siberian musicians and dancers from Sakhalin Island in the Soviet Far East performed in March in Baird Auditorium, entertaining their audience with stories, songs, ritual dances, games, and acrobatics of the Nanai, Orok, and Nivkh peoples. The event, coordinated by Carolyn Sadler, was sponsored in collaboration with the Asia Society, New York.

A "Nomad Family Day" in January, organized by the Office of Education to accompany the exhibition "Nomads: Masters of the Eurasian Steppe," featured the Office of Education's Deb Bennett and her horse Sadie, who demonstrated the ancient riding styles and costumes of the Nomadic tribes of the first century A.D. The Dark Horde, a group of "Mongol" hobbyists dressed in Nomadic costumes, demonstrated Nomadic crafts and read folktales to children and their parents.

Staff Changes

Robert Sullivan was appointed the museum's associate director for public programs.

National Museum of the American Indian

On November 28, 1989, the National Museum of the American Indian was established with the signing of Public Law 101–185. It is the 15th museum in the Smithsonian's family of museums and galleries. The formal transfer of the collections and assets of the Museum of the American Indian, Heye Foundation, to the Smithsonian Institution took effect on June 24.

Considered a "living memorial to Native Americans and their traditions," the museum will embody the highest aspirations of American Indians. The centerpiece of the new museum will be the collection of more than 1 million artifacts from the Museum of the American, Heye Foundation, in New York City. The collection also includes a photo archives and other resource materials. The National Museum of the American Indian will have three components: the George Gustav Heye Center, located in the old U.S. Custom House in lower Manhattan; a storage, research, and conservation facility at the Smithsonian's Museum Support Center in Suitland, Maryland; and a museum in Washington, D.C., located on the National Mall next to the National Air and Space Museum. The Heye Center is scheduled to open in the summer of 1992; construction of the Mall facility is expected to begin in fiscal 1994. The museum will continue to operate its facility at Audubon Terrace in New York until the Heye Center opens.

Construction costs for the three facilities will total approximately $175 million, with funding to be obtained from private and government sources. Alice Green Burnette, Smithsonian assistant secretary for institutional initiatives, has completed the planning of a fund-raising campaign.

On June 1, 1990, after a nationwide search, W. Richard West, Jr., became the first director of the National Museum of the American Indian. A member of the Cheyenne-Arapaho Tribe of Oklahoma, West has had a distinguished career as a lawyer. He brings to the directorship considerable experience in Indian cultural, educational, legal, and governmental issues.

The goal of the museum is to recast traditional elements of museum organization and programs to demonstrate a historic and fundamental change in the relationship with the American Indian community. The interdisciplinary programs will explore Indian culture as reflected in history, music, painting, sculpture, dance, and drama. The museum will be a place where

At a May 21 press conference, Secretary Adams announced the appointment of W. Richard West, Jr., as director of the National Museum of the American Indian. West spoke at the press conference, standing in front of *Bear-Catcher, a Celebrated Warrior*, a portrait painted by George Catlin in Kansas in 1832. (Photograph by Dane Penland)

Indian culture is represented as a continuum, not, as the director has said, as a "mere snapshot of the pristine and often romanticized past" too often presented in traditional museums. Outreach programs will make the collections and other resources accessible to the Indian community. The museum will also seek ways to support the Indian community's own initiatives in cultural development.

Planning for the museum began early this year with the formation of 11 groups that addressed needs and concerns in the areas of public programs, facilities and construction, collections, training and outreach, technology applications, budget and administration, development and public relations, research, governmental relations, international relations, and the opening exhibition at the Custom House. In addition, formal consultation with the Indian community began in the spring. Meetings were held in Oklahoma with representatives from tribes of Oklahoma, Kansas, and Texas and in Cody, Wyoming, with representatives of several Plains Indian tribes. Additional meetings are scheduled throughout the country in 1991.

Architectural planning for the Mall museum and the Suitland research facility began with the search for a firm to develop program specifications for architectural planning and design. The firm will work closely with museum staff and American Indian consultants in determining the program requirements for the new museum.

A major thrust of the legislation that established the museum concerned the repatriation of human remains and associated funerary objects to Indian individuals and tribes. Under the legislation, the National Museum of Natural History has appointed a five-member review committee to assist staff in the repatriation process. In August, Secretary Adams, West, and other representatives from the Smithsonian met in Albuquerque, New Mexico, with representatives of tribal museums, cultural centers, the Indian community, and state and private museums. Pending legislation on repatriation and future courses of action were discussed, and continuing dialogue and cooperation in dealing with repatriation issues and responsibilities were ensured.

National Portrait Gallery

The National Portrait Gallery (NPG) chronicles America's past by exhibiting and studying portraits of those who have left an imprint on U.S. history and contributes to American art history through the study of the artists who have created this portraiture. Using both its permanent collection and special exhibitions, the gallery encourages the public to contemplate leaders in politics, the arts and letters, business, science, sports, and other areas who have shaped American culture.

Exhibitions

To commemorate the bicentennial of the Federal Judiciary Act and highlight the pivotal interpreters and shapers of our legal system, the gallery mounted "Portraits of the American Law" in October 1989. This exhibition featured images of distinguished American judges, lawyers, and legal theorists from the years of the early Republic to the late twentieth century. Support for the exhibition was provided by three national law firms: Morgan, Lewis & Bockius; Vinson and Elkins; and Kirkland and Ellis.

"To Color America: Portraits by Winold Reiss" brought together images of various ethnic groups, particularly African Americans and Native Americans, made by the German-born artist Winold Reiss. From the moment of its opening in October 1989, the exhibition brought new audiences to the gallery. Support was received from Burlington Northern Foundation, the Anschutz Foundation, and the Smithsonian Special Exhibitions Fund. A panel version of this exhibition will travel beginning in 1991 under the auspices of the Smithsonian Institution Traveling Exhibition Service.

"Irving Penn Master Images," organized with the National Museum of American Art and sponsored by USAir, included the 120 master photographs Penn gave to the two museums. The exhibition went on national tour after it closed in August. A selection of masterworks from NPG's photograph collections, ranging from daguerreotypes of the 1840s to a giant Polaroid print of the 1980s, was shown simultaneously.

Among the most popular exhibitions ever held at the gallery was "Oliphant's Presidents: Twenty-Five Years of Caricatures," which opened in April for a seven-month run. The caricatures, sketches, and sculpture by political cartoonist Pat Oliphant of the last six presidents—from Lyndon Johnson to George Bush—went on national tour under the auspices of Art Services International.

Pat Oliphant's bronze of Lyndon Johnson as a centaur with a western hat focuses on the unpredictable and mythic element of this enigmatic man by merging ancient traditions of classical mythology and equestrian portraiture with the indigenous American cowboy theme. This piece was included in the Portrait Gallery's exhibition, "Oliphant's Presidents: Twenty-Five Years of Caricature." The sculpture was on loan by Pat Oliphant, courtesy of the Susan Conway Carroll Gallery.

Another popular success was "The Five of Hearts: Henry Adams and His Washington Circle," which

Political cartoonist Pat Oliphant, Susan Conway Carroll, and photographer Irving Penn (left to right) meet at the opening reception of "Irving Penn Master Images," cosponsored by the Portrait Gallery and the Museum of American Art.

opened in June 1990 and included portraits and memorabilia of the friends who came together in the Adams and Hay homes on Lafayette Square beginning in 1880. The "hearts" were historian and writer Henry Adams, grandson and great-grandson of presidents; his wife Clover, hostess of Washington's most exclusive salon and a gifted photographer; John Hay, author and statesman; his wife Clara, heiress to an industrial fortune; and Clarence King, brilliant geologist and failed entrepreneur.

The National Portrait Gallery is housed in the old U.S. Patent Office building, so it was fitting that the gallery commemorate the 200th anniversary of the establishment of the patent system with "Icons of Invention: American Patent Models." Twenty-eight models selected from the Smithsonian's collection were displayed in the original Model Hall. Sponsored by the Foundation for a Creative America and the Association for Japan–U.S. Community Exchange, the exhibition was jointly organized with the National Museum of American History.

Acquisitions

During 1990, approximately 191 acquisitions enhanced NPG's collections. Among the most important were a 1792 life portrait of Thomas Paine; a self-portrait of Charles Willson Peale; a 1910 poster of the first black heavyweight champion, Jack Johnson; eight pastel portraits by Will Cotton; more than 50 drawings by William Auerbach-Levy; and portraits of Helen Keller and the noted bridge authority Ely Culbertson. A painting of President Ronald Reagan by Henry Casselli was purchased for the gallery's Hall of Presidents by several friends of former President and Mrs. Reagan. The gallery acquired a rare vintage 1926 portrait photograph of Solomon R. Guggenheim by Lazlo Moholy-Nagy, as well as a fine, previously unknown daguerreotype (ca. 1851) of Henry Clay by Frederick de Bourg Richards of Philadelphia and an extremely rare Man Ray photograph (ca. 1922) that depicts Gertrude Stein posing for the Jo Davidson portrait sculpture that is one of the icons of the NPG collection. During the year, an additional 126 *Time* covers were transferred to the gallery.

Publications

In 1990, NPG published *Irving Penn Master Images*, with essays by the gallery's Will Stapp and the National Museum of American Art's Merry Foresta, and an exhibition catalogue on Winold Reiss along with an illustrated checklist of all known portraits by Reiss, both by guest curator Jeffrey Stewart. The University of Washington Press is distributing Frederick Voss's catalogue, *Portraits of the American Law. Oliphant's Presidents* by Wendy Reaves was published by Andrews and McMeel.

The University of Delaware Press is publishing the papers from the 1987 conference on "The Portrait in Eighteenth-Century America"; the Barra Foundation has agreed to sponsor publication of Ellen Miles's catalogue of the work of profilist C. B. J. Fevret de Saint-Memin (1770–1852). The University of Pittsburgh Press is publishing a volume of critical essays, *New Perspectives on Charles Willson Peale*, celebrating the 250th anniversary of the artist's birth. Volume 3 of the *Selected Papers of Charles Willson Peale and His Family: The Belfield Farm Years, 1810–1820*, was issued by the Yale University Press. Patricia O'Toole, guest curator of "The Five of Hearts" exhibition, is the author of a book on the group published by Crown Publishers.

Education

The Education Department interprets the gallery's collection for its visitors through daily tours, elementary

and secondary school programs, and senior citizen outreach programs. In conjunction with the Winold Reiss exhibition, the department conducted a symposium, "The Politics of Portraiture: Icons, Stereotypes, and Other Approaches to Multicultural Imaging," and a portrait-drawing workshop, "Diversity in Portraiture," targeted for culturally diverse high school art students. The department also held a series of caricature-drawing workshops in conjunction with "Oliphant's Presidents." A multicultural view of American history was provided visitors through the lectures, symposia, one-person biographical plays, recitals, concerts, storytelling, and other events in the ongoing "Cultures in Motion" program.

Research

The Catalog of American Portraits (CAP) continued to expand its service to researchers of American history and American art history. In addition to several local collections, major portrait collections in Missouri were surveyed and photographed for the CAP research files. With the aid of a research grant, significant portraits of or by Hispanics were surveyed in Puerto Rico and various areas of the mainland United States. More than 2,000 portrait records, mostly from the southwestern United States, were added to the CAP data base.

The gallery's Peale Family Papers project continued its work on volume 4 of the selected papers of this famous artistic family and on Charles Willson Peale's autobiography (volume 5). The staff edited a volume of critical essays on Peale's work and, with the aid of a research grant, continues research for the *catalogue raisonné* of Rembrandt Peale's work.

A Research Resources Grant funded the creation of a data base finding aid to the Meserve Collection of Mathew Brady negatives, the rehousing of those negatives in archival materials, and the making of preservation prints and facsimile negatives from the Mathew Brady imperial format glass-plate negatives of Edwin Forrest donated to the NPG by the Edwin Forrest Home for Retired Actors.

Office of Exhibits Central

The Office of Exhibits Central (OEC) provides exhibit-related services throughout the Institution in the areas of exhibit design, exhibit script writing and editing, fine cabinetry, sheet plastics, packing and shipping artifacts, modelmaking, taxidermy, matting and framing, and silkscreening.

The year 1990 was one of diversity for OEC, both in the kinds of projects undertaken and the number of clients served. The following are highlights from more than 200 projects undertaken by OEC.

National Air and Space Museum. Working from scanty documentation, the OEC Model Shop made a 1/16-scale model of a Staaken R-IV, a World War I German biplane.

National Museum of American Art. The OEC Graphics Unit produced period stenciling for the exhibition "Treasures of American Folk Art."

National Museum of American History. OEC designed, edited, and produced the exhibition "Go Forth and Serve: Black Land Grant Colleges Entering Their Second Century" and edited the accompanying brochure.

Experimental Gallery. The Model Shop built a scale model of the gallery for planning. OEC designers are advising on transforming the existing space in the Arts and Industries Building into one suitable for a changing exhibition gallery.

National Museum of Natural History. The OEC Fabrication Unit produced 21 large wall cases to display Chinese hell scrolls. For the upcoming exhibition "Beyond the Java Sea: Art of Indonesia's Outer Islands," the OEC editor worked with curators to edit the exhibit script and write the gallery brochure. The Fabrication Unit built more than 50 custom exhibit cases and shipping containers for the artifacts. The Graphics Unit mounted photographs and silkscreened interpretive text and labels.

National Zoological Park. OEC illustrator Chris Reinecke painted two murals: a background for the rhinoceros iguana in the Reptile House and a 12-foot by 6-foot background painting for the Great Barrier Reef aquarium in the Australia Pavilion. OEC designed a new entrance and introductory area to the bat cave and produced life-size models of bats for the entrance. The office also prepared a preliminary design and scale model for a new exhibit about bats.

Smithsonian Institution Traveling Exhibition Service (SITES). In addition to 15 new exhibitions that OEC designed and/or produced for SITES, exhibits that ended their tour came to OEC for dispersal, and others came in to be refurbished before continuing their tours. Among the new exhibitions were two copies of "Climbing Jacob's Ladder: The Rise of the Black Churches in Eastern American Cities, 1740–1877," adapted from the Anacostia Museum exhibit of the same title; "The Road to Heaven Is Paved by Good Works: The Art of Reverend Howard Finster," which includes 40 pieces of folk art; and "Frank Lloyd Wright: Preserving an Architectural Heritage," from the Domino's Pizza Collection.

Visitor Information and Associates' Reception Center. The new Smithsonian Information Center was a showcase for the skills of OEC's Fabrication Unit, which built most of the cherry wood furnishings. OEC also designed and produced the graphics and directional signage.

Office of Horticulture

The Office of Horticulture (OH) manages more than 80 acres of gardens and grounds, rotates horticultural displays in interior public spaces in the museums, and provides flowering and foliage plants for Smithsonian Institution special events and exhibitions. Floral designs and specially grown plants are made available on a limited basis. In addition to this full range of horticultural services, the office has developed educational activities and exhibitions using collections of living plants, garden furniture, and images of contemporary and historic horticulture.

Program Highlights

The office concentrated this year on the maintenance of older trees and shrubs on the Smithsonian grounds by instituting spraying, cabling, pruning, and replacement programs. Safety issues were addressed by elevating limbs and pruning for better illumination of the grounds. The office also continued to improve the soil in the Enid A. Haupt Garden. The research, design, and installation of a computerized irrigation system for better control of watering was initiated. Walter Howell of the Grounds Management Division designed and created a topiary dinosaur, 18 feet long and 10 feet tall, for the grounds of the National Museum of Natural History. The steel framework, which was a team effort with Reed Martin of the Office of Exhibits Central, was filled with soil and covered with four varieties of English ivy.

The office's Greenhouse-Nursery Division (GND) continued to produce exhibition-quality plants for the gardens and grounds, including colorful annuals for 180 decorative hanging baskets, 35 antique cast-iron urns, and seasonal plantings around the museums. Totals included 8,740 pot plants and 3,800 forced bulbs for interior displays, 35,800 pansies, 3,200 ornamental cabbage and kale plants, 700 garden chrysanthemums, 43,000 annuals, and 23,000 alternanthera. In addition, the division provided more than 16,600 plants and about 300 floral arrangements for more than 820 special events. Division staff rotate about 3,000 foliage and flowering plants a year, on a biweekly schedule, to complement the interiors of the museums. For the December holidays, the office produced 1,300 poinsettias

and decorated the museums and gardens, bringing a festive atmosphere to the Smithsonian.

Exhibitions and Collections

The 13th annual "Trees of Christmas" exhibition was held in the National Museum of American History. Of the 11 trees on display, seven were new to the exhibition. Crafts artists across the United States created 2,762 handmade ceramic, corn-husk, paper, tole, brass, hand-painted wood, quilted, and lace ornaments, which they donated to the office's collection.

Throughout the year, the office continued to stage exhibitions in the North Foyer of the National Museum of Natural History. Ornamental grasses, cymbidium orchids, ferns, ivies, and poinsettias were among the featured collections.

The popular traveling exhibition "Victorian Gardens," developed by the Office of Horticulture and the Office of Exhibits Central in conjunction with the Smithsonian Institution Traveling Exhibition Service, is now in its third year of touring the United States.

Four specimen orchid species, selected and cultured by Cheyenne Kim of the Greenhouse-Nursery Division, received special awards from the National Orchid Society. Kim also designed the Smithsonian's award-winning entry in the Institutional Division of the National Orchid Society's exhibition in October 1989. Ted Villapando, also a GND orchid specialist, gave a lecture illustrated with images of the OH orchid collection to the Orchid Society of Charlottesville, Virginia.

The office has begun cataloging the Archives of American Gardens (AAG) collection of contemporary and historic landscapes. Additions to the archives this year were the Lewis and Valentine and Lane Weems collections. Lewis and Valentine, one of the country's oldest landscape firms, became famous for moving mature tree specimens on large estates. This collection includes photographs and nursery documents related to gardens featured in the AAG. The Lane Weems Collection documents the estate of Katharine Lane Weems, noted American sculptor.

In conjunction with the Office of Product Development and Licensing, the office completed another successful year of a collections reproduction program with Garden Source, introducing several wirework and steel spring chairs. In addition, the office coordinated the reproduction by Garden Source of an antique J. L. Fiske fountain in its collections for the garden at Blair House. The original will be returned to the Smithsonian collections.

Office of Museum Programs

The preservation, interpretation, and accessibility of cultural patrimony is the public service that all museums provide. An urgent concern for museums today is achieving cultural equity in this public service by reflecting and serving our diverse society. Cultural equity can best be attained by a multicultural museum profession that understands its responsibilities to its public. Providing leadership in addressing these important issues is the principal focus of the Office of Museum Programs, the center of museum studies at the Smithsonian.

Following on a redefinition of mission and a reallocation of staff resources in 1989, the office developed pilot programs for a new curriculum in 1990. Experimental programs in career counseling, Smithsonian staff training, national in-career development, and international exchange laid the foundation for planning a full national curriculum in museum studies.

The office serves four major constituencies: students, Smithsonian museum staff, and national and international colleagues. Four programs were produced for these constituencies. Students considering museum careers were served by a new intern placement service and an intensive on-site seminar focusing on the responsibilities of museum work and the training necessary to enter the museum profession. In several workshop sessions, Smithsonian museum staff studied diverse ways people learn, applying a new appreciation of learning styles to the planning of museum exhibitions and public programs.

Museum colleagues representing communities across the country came to Washington in June for the office's first annual Training Congress, "Building Partnerships: Museums and Their Communities." Twenty of the 85 museum leaders who attended received the office's award for minority museum professionals. This group came to the Smithsonian for a week of independent study before the congress. As a group of leaders articulate in their concern for building cultural equity in the museum profession, they are important members of a new group of advisers, planners, and teachers for future training programs at the Smithsonian. They will continue to be included in the program planning process, linked by a newsletter published three times a year.

International colleagues were partners in "Making Exhibitions, Constructing Realities," a conference held at the Museu Paraense Emilio Goeldi in Belém, Brazil, in November. A faculty of six U.S. and six Brazilian museum leaders headed discussions and workshops on the theory and practice of interpretive exhibitions. This conference achieved a balance of conceptual inquiry and practical application in the context of cultural diversity, a goal for all of the office's instructional programs.

The office began a new initiative to serve Native American communities in 1990. In developing internships, resident study, and instructional courses in cooperation with tribal museums and colleges, the office is working closely with the National Museum of the American Indian. Using a national network of community sites, the office is creating a new program of American Indian museum studies based on the ethical, conceptual, and technical environment that Native Americans are articulating for public institutions. The work of this program will in turn shape the office's national curriculum.

As 1990 concludes, the constituencies of the office have been defined, the structure of a national curriculum has emerged, staff priorities have been articulated, and a new planning and budget process is in place. Deputy Director Teresa LaMaster joined Acting Director James Sims in March to help lead the redefinition process. Sylvia Churgin, head librarian, began reorganization of the Museum Reference Center in December, refining the national inquiry service and planning for redefined collections for museology research.

Office of the Registrar

The Office of the Registrar (OR) supervises the management of the Institution's vast collection of 137 million objects and specimens. Monitoring Institution-wide collections management policies and procedures, the office is an advocate and catalyst for bureau initiatives and programs that ensure increased access to and continued accountability for the national collections.

The principal Smithsonian policy document guiding collections management, Office Memorandum 808: Collections Management Policy, was updated and officially approved by the secretary during 1990. The policy places renewed focus on maintaining internal controls, developing collecting plans, managing collections information, balancing the goals of access and accountability, and representing cultural and biological diversity. The policy directs collecting units to redraft individual policies and formalize collecting plans to assist in resource and facility management.

Beyond the physical care of the national collections, the Office of the Registrar is responsible for the management and accessibility of information about them. In 1990, the Collections Information System (CIS), a multiyear, pa. -Institutional project, implemented data base systems at the National Air and Space Museum and the National Museum of American Art and in the Departments of Anthropology and Botany at the National Museum of Natural History.

Other activities of the Office of the Registrar include helping staff identify appropriate technologies, training needs, and resources crucial to cross-disciplinary activities. The office advocates the use of new technologies to streamline the daily work of collections management staff and improve recordkeeping by connecting collections, research, and administrative activities. The Office of the Registrar also promotes research in the standardization of Smithsonian data to facilitate information sharing within and outside the Institution.

In the international sphere, the office presented the latest findings of its worldwide survey of computerized collection documentation to the International Council of Museums. The office coordinated a collaborative program between the Smithsonian and the Museo de la Nacion in Lima, Peru, which involved the exchange of museum personnel and the sharing of collections management and conservation techniques and museum ideologies.

Smithsonian Institution Traveling Exhibition Service

America's changing cultural landscape brought new and invigorating challenges to the Smithsonian Institution Traveling Exhibition Service (SITES) in 1990. Efforts to expand the reach of Smithsonian exhibitions to 11 million museumgoers beyond Washington, D.C., replaced SITES's recent emphasis on international art exhibitions. SITES also made a new commitment to serve museums, educational institutions, and community groups that have not benefited fully from the Smithsonian's presence outside the nation's capital.

SITES's broadened program services demanded fresh, innovative approaches to exhibition development, marketing, and affirmative action hiring. SITES worked toward these goals throughout 1990, bolstering its roster of minority staff and advisory committees, strengthening its alliances with culturally diverse professional associations and community organizations, and establishing interdisciplinary staff teams to carry out exhibition projects. Such measures supported SITES's determination to circulate exhibitions that not only incorporate diverse viewpoints and educational methods, but also respond to the broadest possible spectrum of program interests, technical needs, and financial capabilities in communities across the nation.

Preparatory exhibition workshops became a key vehicle through which SITES accomplished its mission. In a new approach to initiating exhibition tours, SITES advertised to potential host museums only a program's core subject matter and probable cost. Interested parties responded by reserving a slot on the exhibition's itinerary and attending a workshop with SITES's staff team, curatorial scholars, advisory committee members, educators, designers, and host museum representatives and civic leaders from communities in which the exhibition would be featured. Together the workshop participants reviewed exhibition content, educational goals, design formats, public program possibilities, fund-raising strategies, and community needs. The ideas, aspirations, and concerns expressed by potential exhibitors and local sponsors thus became the focus around which SITES developed, packaged, and promoted the actual exhibition.

SITES's 1990 workshop for "Climbing Jacob's Ladder: The Rise of the Black Churches in Eastern American Cities, 1740–1877" illustrates how grassroots participation shaped the traveling version of an exhibition created by the Smithsonian's Anacostia Museum. The

host museums expressed concern that the museum's original artifact-intensive presentation might undercut available public program funds by requiring expensive crating, shipping, insurance, installation, and security measures. In response, SITES produced a simpler panel version that surveyed key exhibit subjects but left room for communities to include information and artifacts pertinent to local history. Workshop participants who were interested in featuring "Climbing Jacob's Ladder" in churches or community centers encouraged an easy-to-install design format that could be handled without expert assistance, could be accommodated in large or small spaces, and did not require wall space or professional gallery lighting. Perhaps most important, the "Climbing Jacob's Ladder" workshop generated public programs that related exhibition content to contemporary concerns, stimulating heightened dialogue among interfaith community groups.

The workshop model enhanced another Anacostia Museum exhibition that SITES reconfigured in 1990, "The Real McCoy: African American Invention and Innovation, 1619–1930," as well as "Contrasts: 40 Years of Change and Continuity in Puerto Rico. Photographs by Jack Delano," an exhibition that SITES developed in partnership with the Institute for Puerto Rican Affairs, the National Museum of American History, Smithsonian Institution Press, the Smithsonian Educational Outreach Program, and Alan Fern, director of the National Portrait Gallery.

Working to ensure that the largest percentage of its program offerings would come from Smithsonian resources, SITES took on seven new Smithsonian exhibitions in 1990. These projects will supplement 30 already in circulation. The exhibitions in SITES's 1990 schedule represent not only the Institution's museums, but new research from the National Zoo, the Smithsonian Tropical Research Institute, and the offices of Folklife Programs, Institutional Studies, and Environmental Awareness. This range of offerings gives audiences across the nation a fuller picture of the Smithsonian's scope and programmatic vitality.

The Smithsonian's international profile as the central cultural address in the United States continued to place SITES at the forefront of certain pan-Institutional international projects. In 1990, two exhibitions highlighting Soviet-American cultural exchange and shared research—"Crossroads of Continents: Cultures of Siberia and Alaska" and "Moscow: Treasures and Traditions"—traveled under SITES's auspices. Announcement of the new National Museum of the American Indian generated many exhibition requests from institutions abroad, leading SITES to investigate a wide range of traveling exhibition opportunities that could tour both foreign and U.S. museums. As the year drew to a close, SITES completed workshop plans to reconfigure its leading environmental exhibition, "Tropical Rainforests: A Disappearing Treasure," for museums and educational groups in Latin America.

Exhibition Summary

During the past year, SITES exhibitions traveled to 217 cities in 42 states, the District of Columbia, and countries abroad and were viewed by more than 11 million people. A total of 319 exhibition tours were scheduled between October 1, 1989, and September 30, 1990. Fifteen new exhibitions were introduced in 1990.

New Exhibitions, October 1, 1989, to September 30, 1990:

All Systems Go: America's Transportation System for the 1990's
Architectural Drawings and Watercolors of Paris and Rome by Jakob Ignaz Hittorff (1792–1876)
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities, 1740–1877
Constance Stuart Larrabee: WW II Photo Journal
Contrasts: 40 Years of Change and Continuity in Puerto Rico. Photographs by Jack Delano/Contrastes: 40 Años de Cambio y Continuidad en Puerto Rico. Fotografias de Jack Delano
A Day in the Warsaw Ghetto: A Birthday Trip in Hell
Frank Lloyd Wright: Preserving an Architectural Heritage, Decorative Designs from The Domino's Pizza Collection
Great American Comics: 100 Years of Cartoon Art
India Along the Ganges: Photographs by Raghubir Singh
Irish Decorative Arts of the 18th and 19th Centuries from the Collections of the National Museum of Ireland, Dublin

Moscow: Treasures and Traditions
Paintbrush Diplomacy: Children's Art from the Americas
Provincetown and the Art of Printmaking
The Road to Heaven Is Paved by Good Works: The Art of Rev. Howard Finster
Secessionism and Austrian Graphic Arts (1900–1920) from the Collection of Neue Galerie der Stadt, Linz

Exhibition Tours, October 1, 1989, to September 30, 1990

Number of Bookings	319
Number of States served (including District of Columbia)	42
Estimated Audience	11 million
Exhibitions listed in 1989 Update (catalogue of SITES exhibitions)	108
New exhibitions produced this year	15

Smithsonian Internship Council

The Smithsonian Internship Council, which monitors internship programs throughout the Institution, served 650 interns during this fiscal year, an increase of 43 from fiscal 1989. This year, the council's activities were both internal and external. Within the Smithsonian, the council shared information with other groups about the Internship Council and intern-related matters. Activities outside the Smithsonian included outreach to organizations—including colleges and universities—that have mutual interests and concerns.

Among the council's internal activities were presentations by the Office of Personnel Administration on the Federal Junior Fellowship and the Stay-in-School Program and by the Office of Museum Programs on the office's role in providing registration, orientation, and counseling services for all Smithsonian interns. Council members briefed the Smithsonian's Latino Working Committee on the Internship Council's activities, policies, and procedures. The committee expressed interest in hosting interns, providing contacts with Smithsonian offices and bureaus, and working with the council to identify sources of funding for stipends. The Smithsonian African American Association suggested that the council look at ways to encourage black colleges to participate in internship programs and recommended that the council be represented on the association's Human Resources Committee. The Asian/Pacific American Heritage Committee raised the issue of the public's failure to perceive Asian Americans as a minority and noted the lack of information throughout the Smithsonian on the Asian American experience.

In outreach efforts, the council met with representatives of two organizations to discuss ways to increase communication and cooperation: the National Capital Association for Cooperative Education, which is composed of members from 20 universities and colleges in the Washington, D.C., area, and the Council for International Exchange of Scholars, which administers postdoctoral Fulbright scholarships in the United States. The council also hosted the director of internships from Wake Forest University for an exchange of information.

PUBLIC SERVICE

James Early, Acting Assistant Secretary

The Office of the Assistant Secretary for Public Service and the units it oversees serve as channels for the diffusion of information and assistance inside and outside the Institution. These offices plan and execute educational programs through museum and school-based education projects, disseminate information on the Smithsonian to broad national audiences, and engage in research and the documentation of living cultures. In view of the nation's rapidly changing demographics and the implications these factors have for museums and public education, the Office of Public Service is also mandated to facilitate and advance issues of cultural pluralism and cultural equity.

The Smithsonian's Cultural Education Committee, which advises the secretary on ways to expand multiculturalism among professional and administrative staff in the Institution's research and exhibition programs, sponsored the annual Martin Luther King, Jr., birthday celebration. Vine Deloria, Jr., noted author and former executive director of the National Congress of American Indians, spoke on "Clarity Begins at Home: Rethinking the Human Rights Question." The celebration also featured a performance by the American Indian Theatre Company of Oklahoma.

During the year, the office sponsored pan-Institutional ethnic celebrations for Black History Month, Asian/Pacific American Heritage Week, and Hispanic Heritage Month. Timed to coincide with the Smithsonian's observance of Women's History Month, the office cosponsored with the Ford Foundation and the Smithsonian Women's Council the seminar "Gender Perspectives: The Impact of Women on Museums."

Forty-nine innovative projects were awarded grants by the Smithsonian's Educational Outreach Fund in 1990. Administered by the Office of the Assistant Secretary for Public Service, the fund supports bureau- and office-based initiatives in public outreach and education.

Other activities of the office included support for the Latino Working Committee's request to bring a Puerto Rican musical group, Los Pleneros de la 21, to the Washington, D.C., Latino Festival. With the National Council of Negro Women, the office cohosted a reception honoring the annual Black Family Reunion celebration in September. A working seminar for Smithsonian staff, "Cultural Equity and the Humanities," was organized in collaboration with the Federation of State Humanities Councils to explore program partnerships with council representatives. The office also organized a session on "The Smithsonian Institution's Multicultural Agenda for the 1990s" at the biennial symposium of the Association of American Cultures.

Marshall J. Wong was appointed director of the Smithsonian's Office of Wider Audience Development to coordinate ethnic celebrations and to further develop collaborative relationships with museums, organizations, and individuals to promote cultural diversity and equity.

National Science Resources Center

In the years before children begin school, they exercise their limitless curiosity daily. When they enter the classroom, their universe can be expanded and new areas of inquiry can be opened, or their search for knowledge can be stifled by endless memorization from the pages of a textbook. Too often, this is the way science is taught. As a result, the curious child eager to find out what makes a plant grow, how electric bulbs light, and what happens to caterpillars inside the chrysalis becomes a student who dreads the next science class.

The National Science Resources Center (NSRC) is committed to changing this situation. Established in 1985 as a joint initiative of the National Academy of Sciences and the Smithsonian Institution, the NSRC is working with scientists and educators across the country to reform science instruction and bring students closer to real science through hands-on exploration.

Research shows that children, especially young children, learn science best when they have a concrete body of experience on which to base abstract concepts. For this reason, a common element in most of the NSRC's programs is the introduction of hands-on science activities into the schools.

The NSRC's programs, which are conducted nationwide, encompass three related categories: the development of new and innovative science teaching materials, the dissemination of information about effective hands-on science teaching resources, and the sponsorship of outreach activities to help school districts improve their science programs. The past year was marked by achievements in all three areas.

Development of Science Teaching Resources

Science instruction units for grades one through six from the NSRC's Science and Technology for Children (STC) curriculum project will be ready for national marketing and distribution beginning in the spring of 1991. During the next four years, 24 STC units will be developed and published on a variety of topics in the life, physical, and earth sciences and technology. Each STC unit consists of a teacher's guide with 16 lessons that emphasize observation, experimentation, and analysis; a set of reusable student activity books; and a classroom kit of inexpensive and easily maintained materials.

The bulb lights for Ardesa Robinson as she uses a small motor and a rubber band to generate electricity as part of the National Science Resource Center's *Magnets and Motors* science unit. The setting is Ardesa's sixth-grade classroom at the Stuart-Hobson School of the District of Columbia Public School system, where the *Magnets and Motors* unit was trial-taught. (Photograph by Dane Penland)

All STC units are trial-taught in urban classrooms in the Washington, D.C., area and then field-tested nationwide. The first units were field-tested in some 55 schools in cities, suburbs, and rural areas, reflecting a cross-section of teachers and students. The results of this evaluation effort indicated that the units can be taught successfully by experienced and inexperienced teachers alike and are appropriate for students with differing abilities, skills, and backgrounds.

Information Dissemination

This year, the NSRC catalogued its growing library of 5,000 volumes of elementary, middle school, and high school science teaching materials and developed a new data base for the collection that will enable easier access by visiting teachers. This data base will support revision of the NSRC's popular publication, *Science for Children: Resources for Teachers*. Published by the National Academy Press, this guide to science curriculum materials and sources of assistance for elementary school teachers who want to teach hands-on science has sold 20,000 copies and recently received the Outstanding Academic Book Award from the American Library Association. An additional 20,000 copies have been distributed free to the nation's science supervisors and superintendents of schools. Work has now begun on a new NSRC resource guide, *Science Teaching Resources for Middle Schools*.

The NSRC maintains a growing network of individuals working to improve science teaching, including superintendents of schools, teachers, scientists, science museum educators, and officials from professional educational and scientific organizations. The 31,000 members of this network receive the semiannual *NSRC Newsletter* and information about other NSRC programs.

Outreach

During each of the past two summers, the NSRC has held an Elementary Science Leadership Institute at the Smithsonian. These institutes bring together teams of teachers, school administrators, and scientists for workshops and discussions on strategies for implementing effective elementary science programs. To date, the institutes have involved 32 school districts from 25 states, representing some 1 million school children. The institutes are proving to be effective; after sending representatives to the first institute, for example, the Midland, Michigan, public school system received a large grant from a local foundation to convert an old school into a new science materials center to support Midland's hands-on science program.

The NSRC is planning a larger national outreach project, the National Elementary Science Leadership Initiative, which will link local and state leaders in a massive effort to improve science education in their schools. The support of community leaders and parents for improved science programs will be stimulated through the production and distribution of multimedia information packets about the importance of hands-on elementary science education and the elements of an effective school science program. The project also will expand the Elementary Science Leadership Institutes and provide follow-up support and technical assistance to school districts working to reform their science programs.

Office of Elementary and Secondary Education

How can teachers and their students derive maximum benefit from the Smithsonian and other community and museum resources? The Office of Elementary and Secondary Education (OESE) provides answers to this question through its innovative educational materials and programs.

This year, the OESE's local programs spoke to the culturally diverse traditions of the Washington, D.C., metropolitan area. "Word of Mouth," a weekend symposium cosponsored with the Division of Public Programs, National Museum of American History, gave teachers new ways to incorporate the multicultural perspective into academic lessons. More than 200 local teachers learned how to use oral traditions in the classroom. Workshops showed participants how to avoid stereotypes, how to set up oral history projects in the classroom, and how to use theater techniques to teach language arts. Performers introduced Native American, Hispanic, and African American narratives. Planning for a second symposium on folk narratives in contemporary and urban environments is under way.

Another new local program brought recent urban high school graduates to the Institution for eight-week internships. The pilot SOL '90 (Smithsonian Opportunities for Learning) program was modeled on the OESE's 15-year-old national Summer High School Internship Program. Together these programs gave 45 graduating high school seniors experience working in Smithsonian offices and behind the scenes in museums and the Zoo.

Santillana, a leading educational publisher of bilingual and English-as-a-second-language materials, contracted with the OESE to publish the office's preschool program, being prepared as part of the Smithsonian's Columbus Quincentenary commemoration. Introducing the people and cultures of the Americas, these teaching kits in English and Spanish will include educational games, books, and hands-on activities.

The office's Jackdaws series of classroom materials received major funding from the Phil Hardin Foundation. This grant will add publications on the blues tradition and the social history of rock and roll to the OESE's ongoing series on American music. The Jackdaws series, which will begin publication in 1991, draws on a range of Smithsonian resources, such as the Folkways Archives and several photographic collections, as well as on outside organizations such as the Mississippi State Historical Museum and the University of Mississippi.

This year, OESE's popular newsletter *Art to Zoo* reached a record number of educators and students. Each issue of the quarterly publication provides a complete lesson plan and bilingual student activity page in English and Spanish on subjects related to the Institution's holdings or research interests. The timely "200 Years and Counting: How the U.S. Census Tracks Social Trends" was the most popular issue of the year.

Part of Your General Public Is Disabled, published in 1987, had record sales, with orders from as far away as Australia and Hong Kong. Revenue from the project will support a second edition of this popular book and videotape. Requests for interpreter services for hearing-impaired people also exceeded requests in all previous years.

Following the success of a project funded in 1989, Brother International Corporation awarded OESE a second grant to publish *Image and Identity: Clothing and Adolescence in the 1990s* for use in the 1990–91 school year. Developed in collaboration with the Division of Costume, National Museum of American History, this curriculum supplement involves adolescents in original research that may add to the Institution's holdings of the clothing of today's young people.

Office of Folklife Programs

The Office of Folklife Programs researches, presents, and helps conserve traditional ethnic, tribal, regional, minority, and working-class cultures in the United States and abroad through scholarly research, professional advocacy, and public programs. Highlights of the year included the presentation of three highly acclaimed programs at the Festival of American Folklife, the mounting of an important photodocumentary exhibition on African American culture, the initiation of a Soviet-American folklife research project, and the ongoing activities of Smithsonian/Folkways Recordings.

Festival of American Folklife

The 24th annual Festival of American Folklife celebrated the continuity and diversity of cultures in the United States and around the world. Held on the National Mall June 27 to July 1 and July 4–8, the festival featured living exhibition programs highlighting the cultures of the U.S. Virgin Islands and Senegal and the "Musics of Struggle."

More than 70 Virgin Islanders demonstrated their domestic, occupational, and celebratory traditions, including *kallaloo* cooking, herbal medicine practices, *anansi* stories, net making, charcoal making, calypso music, scratch bands, and *quadrille* dancing. The Senegal program featured representatives of the Wolof, Serer, Toucouleur, Peul, and Manding peoples who presented the importance of social relationships and personal integrity at home, in the market, and in public performances with cooking, *griot* praise singing, *sabar* dancing, *lambe* wrestling, hair braiding, weaving, jewelry making, and discussions about personal adornment and comportment. "Musics of Struggle" showed how traditional forms of music, song, chant, and movement are used with new lyrics or in new contexts to express a sense of purpose and motivate groups to address contemporary circumstances. The musical expressions presented were associated with the U.S. civil rights movement, Gallaudet University's "Deaf President Now" movement, the farmworkers' movement, and the struggles of Appalachian coal miners, Quichua Indians from Ecuador, and South Africans in the antiapartheid movement. Israeli, Palestinian, Kurdish, and Irish singers were also featured.

The success of the festival generated the Virgin Is-

Near the dance hall in the U.S. Virgin Islands program, a *moko jumbie* towers over a spectator during the 1990 Festival of American Folklife. Brought from other islands in the Caribbean, the stiltwalking tradition is now part of the U.S. Virgin Islands culture. (Photograph by Jeff Tinsley)

At the 1990 Festival of American Folklife, Mamadou M'Baye Diouf and Sidy Sary wrestle in a *lambe*, a tournament game associated with harvest celebrations throughout Senegal.

lands Cultural Preservation Act and the establishment of a Virgin Islands Cultural Institute. It also provided the impetus for Senegal's President Abdou Diouf to pledge a building for the developing West African Research Center.

The office is working closely with the Hawaii State Foundation on Culture and the Arts to remount that portion of the 1989 festival in Honolulu and with Michigan State University to produce its annual folklife festival, modeled after the Michigan program at the 1987 Festival of American Folklife.

Folklife Research and Publications

During 1990, scholars conducted studies on the traditions of Senegal, the U.S. Virgin Islands, Soviet and Soviet American music and folklore, Vietnamese and Indonesian folklife, immigrant cultures from Latin America and Southeast Asia, and African epics.

The Folklore Summer Institute for community-based researchers was held for the second year. Twelve scholars met with distinguished folklore faculty from the Washington, D.C., area and other parts of the nation, gaining an opportunity for training and information exchange.

A U.S.-U.S.S.R. exchange project was initiated this year in collaboration with the Soviet Ministry of Culture, the Soviet Folklore Commission, Melodiya Records, scholars of the Soviet Academy of Sciences, and several U.S. and Soviet universities. The project joins American and Soviet scholars to study traditional culture and its transformations by carrying out fieldwork in both Soviet and Soviet American communities. Studies will examine continuity and change in verbal art, song, ritual, crafts, and foodways among Russian, Armenian, Bukharin, Ukrainian, and other immigrants to the United States and their related populations in the Soviet Union.

Research began for a Smithsonian Folklife Studies monograph and film on Persian, Indian, and Caribbean variants of Muharram, an annual religious ritual observed by millions of believers throughout the Islamic world. A volume on occupational cultures has also been initiated with potential for a television series. "*Kathputli:* The Art of Rajasthani Puppeteers" was a

finalist in the American Film and Video Awards for 1990, and the monograph and film by Thomas Vennum, Jr., on the Ojibwa dance drum was awarded the Society for Ethnomusicology's Klaus Wachsmann Prize for best scholarship in organology.

The first edition of the *Directory of African American Folklorists* was compiled and includes nearly 100 individuals and 30 organizations around the country with an indication of their scholarly interests and backgrounds.

Smithsonian/Folkways Recordings and Archives

Smithsonian/Folkways Recordings has released many new publications and reissues and is continuously expanding its archival holdings. Publications this year include the new compilations "Tuva: Voices from the Center of Asia," "Don't Mourn—Organize! Songs of Labor Songwriter Joe Hill," "Been in the Storm So Long: Spirituals, Folk Tales and Children's Games from John's Island, South Carolina," "Sing for Freedom: The Story of the Civil Rights Movement through Its Songs," and "A Fish That's a Song," a recording for children produced in cooperation with the National Museum of American Art. Reissues of children's releases include three recordings by Pete Seeger and 12 by Ella Jenkins.

Negotiations continue on the acquisition of several collections for the archives: the Woody Guthrie archives, which contains papers, recordings, and artwork from this prolific singer-songwriter; the Cook collection, a small record company's collection that includes 140 master recordings, several hundred hours of recordings, and artifacts of the record industry of the 1950s; and Pete Seeger's recordings, films, and papers. A computerized data base for the archives is in operation that will hold all audio, visual, and documentary information on Festival of American Folklife participants, Folkways records, and archival materials.

Columbus Quincentenary Programs

The last of the symposia in the Columbus Quincentenary series examining the relationship between expressive culture and economic systems in the New World was held in Oaxtepec, Mexico. "Seeds of Industry: Transformations of Indigenous Technology in the Americas" was cosponsored with the Centro de Investigación y Estudios Superiores en Antropología Social (CIESAS), Secretaría de Educación Pública (SEP), and Instituto Nacional Indigenista. The symposium examined divergent local and European understandings of demographic, societal, and environmental resources in the Americas at the time of interhemispheric contact. Two volumes of papers from previous symposia are being prepared for publication in Spanish and English, *Seeds of the Past* and *Seeds of Commerce*.

Special Projects

Two lectures cosponsored with Howard University completed the scholarly series "South Africa Today: Living in a Divided Society." Fatima Meer, Nelson Mandela's biographer and professor at the University of Natal, addressed the issue of apartheid in South Africa after Mandela's release from prison. Cyril Ramaphosa, secretary general of the National Union of Mine Workers, spoke on his assessment of current developments in South Africa.

Research conducted by photographer Roland Freeman and folklorists Glenn Hinson and Jerrilyn McGregory culminated in the successful photodocumentary exhibition "Stand by Me: African American Expressive Culture in Philadelphia," which opened at the Afro-American Historical and Cultural Museum in Philadelphia in October. The research project on which the exhibition is based was sponsored by the Office of Folklife Programs and supported by an editorial grant from *National Geographic* magazine and in-kind services from the Philadelphia Folklore Project. The exhibition, which will tour the country, was supported by a grant from the Smithsonian Special Exhibition Fund. A photo essay based on the exhibition was featured in the August issue of *National Geographic*.

Office of Public Affairs

The first Americans and efforts to tell their story through the establishment of the National Museum of the American Indian took center stage this year at the Smithsonian. Through publicity and publications, the Office of Public Affairs helped bring the Smithsonian's Native American programs, as well as African American, Latino, and Asian American programs, to national attention. Helping the Institution reach diverse cultural communities is a major focus of the office, which helps print and broadcast journalists from many backgrounds share the Smithsonian story with tens of millions of people worldwide through news releases, backgrounders, press conferences, publications, photographs, videotapes, logistical support, public service announcements, and advertisements. The office also coordinates Institution-wide information and advertising programs.

In January, the office launched a bimonthly newsletter, *Smithsonian Runner*, which describes activities of the National Museum of the American Indian and other programs of interest to Native Americans. The publication's editor, a Laguna Pueblo Indian, was supported in part by the Smithsonian Educational Outreach Program. *Runner* goes to more than 400 publications and a network of Native American media professionals and others from tribes across the country. The office held a news conference on May 21 to introduce W. Richard West, Jr., as the National Museum of the American Indian's founding director. Major articles on West and the new museum appeared on radio and in the Associated Press, the *Washington Post*, the *New York Times*, the *Los Angeles Times*, and other media. The office also updated and produced a flyer on "Resources at the Smithsonian for Native Americans."

The office's Black Media Outreach Program convened two meetings of its Ad Hoc African American Media Advisory Committee, which is composed of 10 outstanding African American journalists. The committee reviewed a selection of the Smithsonian's programs and suggested ways to improve communication with the media. In response, the office prepared an extensive

Office of Public Affairs staffers, from left, Jo Ann Webb, executive editor; Robert Tezequer, editor; and Peggy Langrall, assistant editor, work on an issue of the new publication *Smithsonian Runner*. (Photograph by Dane Penland)

media plan to increase the coverage of Smithsonian programs, activities, and resources of interest to African Americans. The office wrote and produced two 60-second advertisements incorporating comments by Smithsonian visitors, which were aired during Black History Month on Washington, D.C., radio stations WHUR and WKYS. Some 1,400 listeners called for information. Other radio advertisements prepared by the office included those promoting the Anacostia Museum's summer exhibition, "Whose Art Is It, Anyway? The Arts in Public Places."

As part of its Hispanic Media Outreach Program, the office coordinated an exhibit and full-page conference booklet advertisement for the eighth annual National Hispanic Media Conference in San Francisco. About 1,000 reporters attended the conference. The office also organized a briefing on the Columbus Quincentenary for the National Association of Hispanic Publications, which pledged its support for publicizing the Smithsonian's impressive array of programs. For Hispanic Heritage Month, the office carried out an extensive publicity campaign, including newspaper and radio advertisements.

The office produced a number of special publications this year, including two supplements in the employee newspaper, the *Torch*, on the Smithsonian's volunteers and on the National Zoo's centennial. The office introduced the newly designed and expanded *Research Reports*, a quarterly newsletter that reports on ongoing research. Brochures for the Smithsonian Marine Station at Link Port and the Conservation Analytical Laboratory were also produced.

The Smithsonian News Service, a free, syndicated feature story service for daily and weekly newspapers, swept the top four awards in the writing competition sponsored by the National Association of Government Communicators. A subscriber survey completed this year indicated extremely high satisfaction by the service's 900 subscribers.

During the year, the office edited and distributed more than 550 news releases, and office staff responded to about 750 inquiries from reporters. Staff members also initiated dozens of media proposals and coordinated media relations on a number of complex stories. For several tense days in December, the office worked with others at the Smithsonian to respond to media inquiries on the fate of a group of Smithsonian employees who were briefly taken hostage in Panama during the U.S. invasion and later released unharmed. The media also focused unprecedented attention on the challenges facing the Smithsonian as it moves into the twenty-first century, and the office responded by coordinating dozens of interviews with Smithsonian officials. Major articles appeared in the *New York Times*, the *Christian Science Monitor*, the *Washington Post*, *U.S. News and World Report*, and other outlets.

The office organized major publicity campaigns for the "Information Age" exhibition at the National Museum of American History, the launch of the Corporate Associate Program, the initiation of the African American Institutional Study, and the opening of the Smithsonian Information Center.

Visitor Information and Associates' Reception Center

The new Smithsonian Information Center, the keystone of the Visitor Information and Associates' Reception Center's (VIARC) six-year plan to improve information and orientation services for visitors, opened to rave reviews on November 15, 1989. This event also heralded the introduction of computerized reference systems for volunteer information specialists assigned to the center and the acquisition of specially designed office space for VIARC's Public Inquiry Mail and Telephone Services.

The Smithsonian Information Center, located in the Great Hall of the Castle, was funded by leadership grants from the Pew Memorial Trust, the Kresge Foundation, and the Morris and Gwendolyn Cafritz Foundation and through the generous support of the Contributing Membership of the National Associates, the National Board, and others. Operating from 9 A.M. to 5:30 P.M. daily, the center is a multifaceted information and orientation source for visitors to the Smithsonian and provides a wealth of assistance on other popular attractions in the nation's capital.

Award-winning information components include an orientation video shown in twin theaters on a staggered schedule throughout the day and an interactive touch-screen program on the Smithsonian in seven languages. Other components include two scale models of Washington's monumental core, two electronic wall maps and interactive touch-screen programs highlighting popular capital attractions, backlit panels featuring Smithsonian facilities, rolling-screen monitors listing daily activities, an Associates' lounge, a central information desk, and an Associates' reception desk. Volunteer information specialists provide direction and assistance throughout the Great Hall.

Access to the center's information components and services was planned to ensure maximum ease of use by the widest possible audience. Visitor traffic flow and building access and egress were improved with the opening of three additional doors, including the South Tower door from the Enid A. Haupt Garden. This entrance was further enhanced by the decorative restoration of the South Tower Room to the ambiance it enjoyed as the 1902 Children's Room.

In its first 10 months of operation, the center was the fourth busiest Smithsonian facility, serving 1,507,351 visitors. Membership sales also increased to an average of 500 a month.

To accommodate expanded public information activities, VIARC's Seven-Day Information Service Unit increased the volunteer information specialist corps to well over 650. As a result of efforts to attract culturally diverse volunteers, 19 percent of the participants in fiscal 1990 training classes represented minority constituencies. Additional volunteer staffing and training were provided for the "Caribbean Festival Arts," "Masterworks of Louis Comfort Tiffany," and "Dinamation: Dinosaurs Alive and in Color" exhibitions, as well as for the Paul E. Garber Facility Open House. With the reopening of the Smithsonian Institution Building, the Castle Docent Program resumed public walk-in tours in the spring.

The Public Inquiry Mail Service received and processed some 47,000 pieces of mail during the year. In addition, some 1,200 information packets were mailed in conjunction with the Smithsonian's efforts to broaden the cultural diversity of its audience. The Telephone Information Service handled in excess of

VIARC staffers Bruce Kirby and Grace Tull try out an interactive video terminal designed for visitors to the new Information Center. (Photograph by Eric Long)

337,000 calls from the public during the year. The volume of calls received in April was the highest ever experienced in one month. The Washington Craft Show, Paul E. Garber Facility Open House, Cherry Blossom Festival, the opening of the National Museum of Natural History's "Dinamation: Dinosaurs Alive and in Color" exhibition, the Hirshhorn's film showing of *Twin Peaks*, and Earth Day together generated 24,343 calls. Throughout the year, comprehensive recorded information was provided on Smithsonian activities for Black History Month, Women's History Month, "Dinamation," Asian/Pacific American Heritage Week, the Festival of American Folklife, and Hispanic Heritage Month. Dial-a-Phenomenon, the popular sky watcher's report, attracted some 59,000 calls.

The Behind-the-Scenes Volunteer Program continued to provide valuable support to the Institution's offices and bureaus, including special translation services. Some 1,213 volunteers provided assistance on both short- and long-term special projects. Minority participation in the total corps of registered and placed volunteers increased from 12.1 percent to 15 percent. VIARC's annual Institution-wide volunteer survey documented that 5,159 volunteers contributed 529,782 hours of service during 1990.

The Information Resources Division absorbed the added responsibility of updating and maintaining all automated information systems in the Smithsonian Information Center and continued to produce in a timely manner its monthly Institution-wide exhibitions directory and calendar of events. The use of a desktop publishing program greatly improved the appearance of these essential in-house resources, as well as that of key VIARC publications. Forty-nine VIARC publications were produced and 15 public information pieces were reviewed for other organizations.

EXTERNAL AFFAIRS

Thomas E. Lovejoy, Assistant Secretary for External Affairs

The Smithsonian Institution's response to the needs and concerns of its many external constituencies is the primary responsibility of the Office of the Assistant Secretary for External Affairs. The office frames the Institution's goals and impact beyond the National Mall through the supervision of its component units (which included for the first time the media group), through the hosting of diplomatic events and events in honor of the friends of the Institution, and through addressing the role of the Smithsonian in national and international affairs.

The office has directly undertaken a number of initiatives this year. Responding to emerging global change issues, it has linked the Institution's research and education projects to efforts by the Congress, the administration, various federal agencies, nongovernmental organizations, academic institutions, and industry to address impending global change problems.

Of particular importance this year was the appointment of Assistant Secretary Thomas E. Lovejoy to the 15-member President's Council of Advisors on Science and Technology. Other activities of the office included the joint effort with the Smithsonian Tropical Research Institute to facilitate a $10 million debt-for-nature swap between the United States and Panama; the pursuit of an initiative with the government of Japan to establish a Tropical Forest Management Information Center; cooperation in organizing several Earth Day events on the National Mall with the National Museum of Natural History/National Museum of Man, Congress, and the American Institute of Biological Sciences; and a series of events, with the World Wildlife Fund, for members of Congress and federal agency administrators to address issues such as U.S. energy policy and environmental degradation in Eastern Europe.

Consonant with the Smithsonian's commitment to cultural diversity in the Institution and the world at large, the office organized and presented a session on the environment and human rights of indigenous peoples through the Society for Applied Anthropology at a conference in England. In addition, W. Richard West, Jr., director of the National Museum of the American Indian, has asked Deputy Assistant Secretary for External Affairs Marc Pachter to undertake international planning for the museum, focusing on the presentation of non-U.S. indigenous cultures and the relevance of the museum to indigenous communities throughout the world.

Assistant Secretary for External Affairs Thomas E. Lovejoy and screen actor Tom Cruise join forces for the protection of the environment at Earth Day festivities on the National Mall in April 1990. (Photograph by Eric Long)

Media Projects

"Invention," the Institution's first major cable television initiative, produced by the Discovery Channel in cooperation with the Smithsonian for a worldwide audience, was in production during the year for an October 2, 1990, premiere. Endorsed by the National Education Association and intended for classroom use, as well as for prime-time cable television broadcast, this 13-program series celebrates humanity's ingenuity and creativity. Programs in the inaugural season of "Invention" primarily feature the collections of the National Museum of American History, but in future years the series may also include other Smithsonian and non-Smithsonian segments.

In keeping with the Institution's goal of cultivating corporate support for media projects, "Invention" is funded entirely by outside sources. Moreover, it is expected to generate significant royalty revenue as it reveals the national collections to more and more of the world.

Also generating revenue to support institutional programs and objectives are the Smithsonian Video Collection; the Smithsonian Laserdisc Collection; the Smithsonian Interactive Compact Disc Series (a collaboration with Phillips N.V.); "Smithsonian World"; "Perspectives on the Twentieth Century with Walter Cronkite," a collaboration with Media Access Corporation; the Smithsonian/Discovery series of interactive educational software; and the Smithsonian/Creative Media Associates collaboration to produce an educational Nintendo cartridge. Efforts to develop a fully coordinated multimedia capability continue under the direction of the deputy assistant secretary for media.

National Demonstration Laboratory for Interactive Educational Technologies

Visitors to the National Demonstration Laboratory (NDL) can learn about interactive educational technologies in an environment that permits hands-on access and encourages discussion and questions. At 17 work stations, visitors are introduced to a wide range of education and training programs that combine computers and multimedia materials, including foreign language, math, medical ethics, art appreciation, substance abuse awareness, nursing care, science, industrial safety, current events, and recent history.

William Lord, vice president of ABC News Interactive, demonstrates the interactive videodisc program about Dr. Martin Luther King, Jr., introduced by his group in January 1990 at the National Demonstration Laboratory.

The demonstrations incorporate discussions of instructional design, reutilization of existing video materials, the educational benefits of interactivity, and the status of the interactive educational technologies field. Sessions are keyed to the visitor's level of understanding of both technical and instructional issues.

As a national clearinghouse, the NDL has a library of materials about interactive educational technologies. Visitors are welcome to study the collection of books, journals, government and academic reports, and catalogues.

The lab is the only site in the United States at which European PALS-standard disks are available for demonstration. These programs include the British Domesday program and North Polar Expedition. Several interactive programs are on long-term loan from the Department of Defense, including Spanish, Hebrew, and Korean language training.

Representatives of educational organizations are invited to join the NDL's Research Consortium, which is composed of universities and other educational institutions that are leading the way in the field of interactive technologies.

Office of Membership and Development

The Office of Membership and Development significantly enhanced its fund-raising capabilities during 1990. Completion of the reorganization begun in 1989 increased efficiency and enabled the office to respond to the growing institutional need for private support. The office has been divided into four units: Individual Giving, Corporate and Foundation Giving, Development Services, and Information. Improvements in information handling, prospect identification and research, and national outreach activities, along with service agreements with each bureau, have boosted fund-raising activity throughout the Institution.

This year, the office has put primary emphasis on planning and initiating a major gifts fund-raising effort to secure annual and long-term support for both unrestricted and restricted purposes, according to the secretary's stated fund-raising priorities. As part of that effort, the National Board is committed to canvassing its membership for major contributions to priority institutional programs. The Regent's Advisory Committee on Planning and Development was also created in 1990.

Another significant new activity undertaken in 1990 was the inauguration of the Smithsonian Salutes! series of national outreach events. In cooperation with the National Board of the Smithsonian Associates and the Contributing Membership Program of the Smithsonian National Associate Program, the office hosted events in Houston, Los Angeles, Palm Beach, and Minneapolis that included area donors, Contributing Members and their friends, and corporate representatives. The events introduced today's Smithsonian and thanked the communities for their past and present support. Additional events are being planned for other locations across the country. In Washington, the office hosted a reception for major donors at the official dedication of the new Smithsonian Information Center in the Castle in conjunction with the Visitor Information and Associates' Reception Center.

The office worked closely with the National Associate Program to further a number of new membership activities begun in 1989 and 1990. Members of the Individual Giving unit and the Contributing Membership Program are collaborating on efforts to increase membership in the James Smithson Society, the highest level of Contributing Membership, through the Secretary's Circle, a volunteer network led by National Board member Alexander McLanahan. The Corporate Associ-

ate Program, spearheaded by founding chairman Roberto C. Goizueta of the Coca-Cola Company, garnered 14 members in 1990, including three vice-chairmen. The office also helped the National Associate Program produce a poster promoting private gifts to the Institution for display in the Smithsonian Information Center and other public areas. Other vehicles to raise public awareness of the public-private partnership have been created, including a full-color brochure about the need for private support at the Smithsonian.

During 1990, the Institution received many significant gifts and bequests to further its research and educational goals. This support is continued evidence of the high regard in which the Smithsonian is held by the nation's individuals, foundations, and corporations.

Among the Institution's highest priorities is monitoring, understanding, and arresting deterioration of the global environment, with emphasis on research, conservation, training, and public education related to tropical rainforests. To support this work, the Andrew W. Mellon Foundation gave $250,000 to the Smithsonian Tropical Research Institute for its tropical paleoecology project and $170,000 to the National Museum of Natural History for the Biological Dynamics of Forest Fragments program (formerly Minimum Critical Size of Ecosystems). The Pew Charitable Trusts gave $150,000 toward a $300,000 pledge to the National Zoological Park for its training program in wildlife conservation and management. The Ethyl Corporation made a pledge of $300,000 to support the National Museum of Natural History's "Chesapeake Bay Mesocosm" exhibition. The Smithsonian Institution Traveling Exhibition

Craft show volenteers having an old-fashioned slide-project bee on an Arts and Industries Building balcony. (Photograph by Eric Long)

Service received $100,000 from the John D. and Catherine T. MacArthur Foundation for a Latin American version of the popular exhibition "Tropical Rainforests: A Disappearing Treasure."

The arts at the Smithsonian were also well supported this year by private donors. The J. Paul Getty Trust has provided $150,000 for the conservation of James McNeill Whistler's Peacock Room at the Freer Gallery of Art. The Cooper-Hewitt National Museum of Design received $100,000 from the J. M. Kaplan Fund, Inc., for the Cooper Union Legacy Exhibition. The Arthur M. Sackler Gallery received support from the Arthur M. Sackler Foundation for the quarterly journal *Asian Art* and from Mrs. Arthur M. Sackler for a symposium titled "New Perspectives on Chu Culture during the Eastern Zhou Period." Yamanouchi Pharmaceutical Co., Ltd., provided major underwriting for the Sackler's exhibition "Yokohama: Prints from Nineteenth-Century Japan."

The National Museum of American History received unprecedented contributions from more than 20 major communications industry corporations for its new permanent exhibition "Information Age: People, Information, & Technology." In 1990, the exhibition received $250,000 from IBM Corporation, $100,000 from Hewlett-Packard, and $100,000 from the Xerox Foundation. The museum also received a major pledge of $4 million from the American Chemical Society to underwrite the upcoming exhibition "Science in American Life."

Several of the Columbus Quincentenary programs at the Smithsonian benefited from private philanthropy during 1990. Chief among these is the major exhibition "Seeds of Change" at the National Museum of Natural History, which received a pledge of more than $1 million from the Xerox Corporation.

Other major gifts received this year include two large bequests: $509,478 from the estate of Frances B. Ferguson for the Ferguson Endowment and $100,000 from the estate of Mildred Dassett for the Cooper-Hewitt National Museum of Design. Corporate and foundation gifts included $260,000 of a $400,000 pledge from Chevron U.S.A., Inc., to the National Museum of Natural History for the exhibition "Beyond the Java Sea." Lotus Development Corporation gave $103,000 for the Starlit Symphony film in the "Beyond the Limits" exhibition at the National Air and Space Museum. The American Committee on the French Revolution contributed $150,000 toward the French portion of the Festival of American Folklife. Boeing Company (through the Seattle Organizing Committee of the Goodwill Games) gave $137,763 to underwrite "Moscow: Treasures and Traditions," an exhibition being circulated by the Smithsonian Institution Traveling Exhibition Service. From the Pew Charitable Trusts came $150,000 for an exhibition in the Experimental Gallery, scheduled to open in early 1991. The Alfred P. Sloan Foundation gave $122,355 for the conclusion of the Video History Program at the National Air and Space Museum. The Institution was delighted to receive a pledge from the Kajima Corporation, which, together with Hitachi Ltd. and the American Family Life Assurance Company, is underwriting a film on Japanese gardens for American and other audiences.

National Board of the Smithsonian Associates

The National Board of the Smithsonian Associates was established in 1971 to bring the Institution into closer association with corporate, professional, community, and cultural leaders from throughout the country. The Institution looks to the National Board for guidance in stimulating appropriate forms of cooperation among these sectors, for assistance with regional Smithsonian activities and educational services, and for private support for these and other programs.

At the board's annual spring meeting, held in the Transco Energy Tower Building in Houston, Texas, Secretary Adams, Assistant Secretary for External Affairs Thomas E. Lovejoy, and Director of Membership and Development Thomas McCance, Jr., reported on institutional activities. Six new board members were elected: Anne Bass of Texas, Fletcher Byrom of Arizona, John Harbert of Alabama, George Mueller of California, Leveo Sanchez of Virginia, and Holley Smith of Montana. Chairman Gay Wray thanked retiring members Alexander McLanahan of Texas, Charley Dickey of Pennsylvania, Joan Donner of Colorado, Howard Love of Pennsylvania, and Charlie Murphy of Arkansas for their service to the board and the Institution. The weekend was hosted by current and former board members Mr. and Mrs. Jack Bowen, Mr. and Mrs. Alfred Glassell, Mr. and Mrs. Gerald Hines, and

Women's Committee of the Smithsonian Associates

Mr. and Mrs. Alexander McLanahan, who arranged visits to several local museums and the Johnson Space Center. Two dinners were held for the board; one at the Houston Museum of Fine Arts included local civic leaders. Former board member James Elkins also hosted a luncheon at his home.

Twenty-nine board members (past and present) and spouses journeyed to the Soviet Union in May. The study trip was led by Assistant Secretary for Research Robert S. Hoffmann and Mrs. Hoffmann, who with their knowledge of Russia helped to make the trip more meaningful.

The board's annual meeting was held in Washington, D.C., September 21–23, 1990. An orientation session on September 21 acquainted old and new members with the workings and breadth of the Smithsonian. That evening the joint National Board–James Smithson Society dinner was held at the National Museum of American Art and the National Portrait Gallery. The collection of American folk art given by Smithson medalist Herbert Waide Hemphill, Jr., to the National Museum of American Art was on display. At the dinner, Sam DeVincent of Fort Wayne, Indiana, received the James Smithson Society Founder Medal for his significant contribution of sheet music to the collections in the history of American music at the National Museum of American History. At the September 22 meeting, members and spouses heard about the Institution's national and international outreach from Deputy Assistant Secretary for External Affairs Marc Pachter, Smithsonian Institution Traveling Exhibition Service Director Anna Cohn, and Smithsonian National Associate Program Assistant Director Stephen Pike. A dinner for present, past, and honorary board members was held at the National Air and Space Museum and honored the founding members of the board. On September 23, Secretary Adams, Treasurer Ann Leven, and Acting Under Secretary Nancy Suttenfield covered current areas of major concern to the Smithsonian.

The 63 active members, 50 resource members, and 28 sustaining members of the Women's Committee of the Smithsonian Associates continued to support and advance Smithsonian interests through fund-raising events and project awards. Committee members contributed more than 7,000 volunteer hours to the Institution this year. Net proceeds from the 1989 Washington Craft Show and the annual Christmas Dinner Dance enabled the committee to fund 48 projects in 19 Smithsonian bureaus for a total of $192,099. Projects were supported in amounts from $900 to $12,000. An additional $40,000 was earmarked for the Women's Committee Endowment Fund.

The projects supported reflected the committee's commitment to education, outreach, and research at the Smithsonian. Awards supported speakers for a docent training program at the Hirshhorn Museum and Sculpture Garden, revision of the "Shapes and Colors" tour for the mentally disabled at the National Air and Space Museum, and the addition of open captions for deaf visitors to educational videos at the National Museum of African Art. The National Museum of American History received funding for a conservation assessment study of objects in the Duke Ellington Collection; the transcription of tape recordings for "An Oral History of Southern Agriculture"; and the identification, arrangement, and housing of photographs of foreign gold coins in the J. K. Lilly, Jr., Collection.

Awards to the National Museum of Natural History supported the production of a videotape on geologic time and the collection of rock sections for the "Tower of Time" exhibit; the development, production, and distribution of an instruction kit on Southeast Asian cultures; and the curation of *Lepidoptera* slides. The National Zoo was given support to purchase three spotting scopes that enable visitors to view a newborn gazelle, bear cubs, and free-ranging monkeys; create new school loan kits for elementary school teachers; and develop a teaching guide on the contribution of the Algonquian Indians to modern-day use of plants for food and medicine.

Other grants were made for the preparation of a *catalogue raisonné* of the works of Rembrandt Peale; the duplication and preservation of Antoine Sevruguin photographs in the Freer Gallery of Art/Arthur M. Sackler Gallery archives; the purchase of volume 3 of a rare set of nineteenth-century furniture and drapery designs by

the Cooper-Hewitt National Museum of Design branch library; and the creation of facsimile mylar copies of deteriorating architectural drawings and plans. In addition, support was given for the construction of the Java History Trail at the Smithsonian Environmental Research Center and the development of an outdoor living marine exhibition at the Smithsonian Tropical Research Institute. The Smithsonian Astrophysical Observatory received funding for educational information sheets on astronomy, and funding was provided for instructional literature and supplies for workshops held in conjunction with the Smithsonian Institution Traveling Exhibition Service's exhibition "Climbing Jacob's Ladder."

The 19th annual Christmas Dinner Dance was held in the rotunda of the National Museum of Natural History. This gala evening and established Smithsonian tradition was again a highly successful fund-raising event.

The 1990 Washington Craft Show featured 100 outstanding crafts artists from 29 states who were selected by a distinguished panel of jurors from more than 1,200 applicants. A preview reception and silent auction held in conjunction with the craft show raised additional funds for the Smithsonian.

Smithsonian National Associate Program

Serving more than 2 million members, the Smithsonian National Associate Program offers innovative educational opportunities throughout the nation, expanding the boundaries of the Institution to encompass all 50 states. The program's far-flung membership is kept abreast of the Institution's activities through *Smithsonian* magazine and the newsletter *Smithsonian Traveler*. In cooperation with other Smithsonian bureaus, the program has organized a diverse range of activities for members. As a result, the program has, since its beginning in 1970, fostered a strong national constituency for the Smithsonian's work while establishing itself as an important source of unrestricted trust fund income.

A sampling of the activities and accomplishments of the program's six units follows.

Contributing Membership

Contributing Membership grew significantly in fiscal 1990, from 52,000 to 62,000 member households. Contributing Members help support the Institution's work with annual dues and gifts in response to special fund-raising appeals, as well as with matching contributions from their employers. This year, Contributing Membership net income reached $4 million, a 40 percent increase over fiscal 1989.

Members participate at one of six membership levels: Supporting ($600), Donor ($125), Sponsoring ($300), Sustaining ($600), Patron ($1,200), or the James Smithson Society ($2,000). In return, they receive a charitable tax deduction and a range of tangible benefits. For the first time in 1990, all members received the quarterly publication *Smithsonian Institution Research Reports*.

Contributing Members participate annually in a variety of exclusive Smithsonian programs. In October 1989, 110 members journeyed to South America with Thomas E. Lovejoy, assistant secretary for external affairs, Michael H. Robinson, director of the National Zoological Park, and other renowned scholars on a three-week study tour of the Amazon and Orinoco rivers. During the fall 1989 and spring 1990 sessions of the Contributing Membership office's popular "Smithsonian Treasures" program, 180 members from across the United States toured behind the scenes in many of the Institution's museums and research facilities. In

spring 1990, members studied American art at the National Portrait Gallery, National Museum of American Art, and National Museum of American History during the first Contributing Membership "Smithsonian Focus" study program.

The Contributing Membership office also launched a new organization of fund-raising volunteers in fiscal 1990. The Young Benefactors of the Smithsonian Institution was created to involve individuals between the ages of 25 and 45 in raising unrestricted funds for the Institution, increasing awareness among young professionals of the Smithsonian's goals, and building a foundation for future Smithsonian support.

James Smithson Society

Members of the James Smithson Society again participated in a special weekend of activities held in late September in conjunction with the fall meeting of the National Board of the Smithsonian Associates. During the weekend, the society's Founder Medal was presented to Sam DeVincent in recognition of his extraordinary contributions to the collections and programs in the history of American music at the National Museum of American History.

The Smithson Society awarded grants totaling $444,015 this year to support the following Smithsonian projects and acquisitions:

National Museum of African Art: To acquire a Teke sculpture from the Republic of Congo.

National Air and Space Museum: To produce a documentary film showing the benefits of scientific education for young women.

National Museum of American Art: To research, develop, and produce an introductory audiovisual presentation for the exhibition "The West as America, 1820–1920."

National Museum of American History: To purchase a typesetting system for the exhibition and publication divisions; to publish an exhibition booklet, *From Parlor to Politics*; and to produce an informational fund-raising video on the history of jazz programs.

Hirshhorn Museum and Sculpture Garden: To produce an audiovisual visitor orientation program for the collection of nineteenth- and twentieth-century sculpture.

Henry Elliot, curator at the National Museum of African Art, narrates the Yoruba tale of "shango" (the god of thunder) while Smithsonian Contributing Members observe the century-old wood dance wand on view in the "Yoruba: Nine Centuries of African Art and Thought" exhibition. (Photograph by Richard Strauss)

Associates attend a 20th-century furniture design semin.r of the Smithsonian National Associate Program at the "Out on a Limb" workshop in Arlington, Virginia.

National Museum of Natural History: To produce a press resource guide and to support the 1991 undergraduate summer intern program.

National Zoological Park: To produce a migratory bird information kit to facilitate formation of a conservation network.

Smithsonian Astrophysical Observatory: To distribute the movie *Mapping the Universe* to students and the general public.

Smithsonian Institution Libraries: To support the exhibition "Nusantara: Lands and Peoples of Indonesia."

Smithsonian Tropical Research Institute: To improve and manage the Fish Skeletal Reference Collection in the Archaeozoology Laboratory.

Smithsonian Institution Traveling Exhibition Service: To subsidize production and transportation costs for the exhibition "Plains Indian Art."

Office of Folklife Programs: To support research and preparation of *Smithsonian Cookbook Sampler: Recipes from the Festival of American Folklife*.

Office of Public Affairs: To publish a new booklet describing Smithsonian research behind the scenes.

Office of the Assistant Secretary for Museums: To research a new book, *Museum Careers*, for students, counselors, and museum professionals.

Office of Exhibits Central: To purchase production software for the fabrication unit.

Office of Telecommunications: To produce a new national radio series, "Rediscovering America."

Corporate Associate Program

The Smithsonian Corporate Associate Program was launched in January 1990 with the announcement that Roberto C. Goizueta, the chairman and chief executive officer of the Coca-Cola Company, would serve as the program's founding chairman. Goizeuta subsequently recruited three other chief executives as vice-chairmen: August A. Busch III, Anheuser-Busch Companies; Harold A. Poling, Ford Motor Company; and Richard J. Mahoney, Monsanto Company.

Corporations are invited to become members at two levels, $25,000 or $10,000. Among the 1990 founding members were the General Electric Company, Walt Disney Company, Dow Chemical Company, Bell South Corporation, Capital Cities/ABC, McDonald's Corporation, Lee Enterprises, Eaton Corporation, D'Arcy MB & B, and Needham DDB. Through their investment in the Smithsonian, these and other companies demonstrate the critical role an enlightened private sector can play in advancing public good.

U.S. and International Events

U.S. and International Events, now in its 15th year, provides educational events that highlight the research and collections of the Smithsonian for National Associate members and the general public nationwide. Each year, Smithsonian curators, scientists, and research associates present lectures, seminars, hands-on workshops, and concerts in approximately 25 U.S. cities.

Grand Junction, Colorado, was one of the cities that presented Smithsonian events during the past year. The series highlighted Native American culture and inspired the cosponsoring organizations to develop a four-week festival of Hispanic art, history, and culture. This series of events marked the program's first visit to Grand Junction. Other cities visited for the first time in 1990 were Albany, New York; Norfolk, Virginia; Fullerton and Santa Ana, California; Fort Collins, Colorado; Burlington, Vermont; Salina, Kansas; Concord and Manchester, New Hampshire; and Toledo, Ohio.

The success of activities organized by U.S. and International Events depends in part on collaborations with local and national organizations. During 1990, the program collaborated with 75 local organizations throughout the country, including museums, universities, zoological parks, and botanical gardens.

Twenty-six new programs were developed this year. Among them were "Inside Active Volcanoes," by Richard Fiske and Mary Dillon; "Birdlife in the Yucatán," by Russell Greenberg; "Feminine Image in African Art," by Roslyn Walker; and "Concepts of Beauty in the Arts of Sub-Saharan Africa," by Christine Mullen Kreamer.

In addition to presenting programs around the country, U.S. and International Events coordinates international series. During 1990, the program visited Pontificia Universidad Catolica in Santiago, Chile, five times with 14 events.

Smithsonian Research Expeditions

The purpose of the Smithsonian Research Expeditions is twofold: to offer Associate members the opportunity to become personally involved with the Institution by working closely with Smithsonian professionals and to provide Smithsonian scientists with an additional source of field assistance and funding for their research projects. One hundred sixty Associate members participated in the 1990 Research Expeditions, contributing more than $200,000 and providing more than 100,000 volunteer hours.

One expedition held this year was part of the Yucatán project led by James Lynch and Dennis Whigham from the Smithsonian Environmental Research Center. Two teams accompanied Lynch and Whigham to the Yucatán Peninsula to assist in the study of bird life and vegetation and to examine the effects of Hurricane Gilbert on these populations.

Smithsonian Study Tours and Seminars

Smithsonian Study Tours and Seminars organizes educational programs that mirror the many and varied interests of the Institution. In 1990, more than 6,000 National Associates participated in 175 foreign and domestic tours and seminars.

Several new foreign study tours were offered this year. For the first time, Associates visited Trinidad and Tobago, focusing on the area's rich bird life. Associates also traveled by rail on the Far East Express from Singapore through the Malay Peninsula to Southern Thailand. Two important anniversaries were observed. Associates toured special museum exhibitions and visited sites in the Netherlands and France related to the life and work of Vincent Van Gogh on the centennial of his death. Seventy Associates attended activities in England commemorating the 50th anniversary of the Battle of Britain.

More than 900 Associates boarded specially chartered river and ocean vessels in various parts of the world. Participants again cruised the Red Sea, making inland journeys to Luxor and Petra. One hundred thirty-six Associates journeyed on the luxurious new *Seabourn Spirit* around Cape Horn. Other groups explored the coast of Turkey aboard the tall ship *Sea Cloud*, saw the beautiful banks of the Upper Volga, newly opened to foreigners, and discussed historic changes in Eastern Europe on a Danube cruise from Romania to Germany.

Foreign residential seminars were held at Trinity College, Dublin, at the American University in Cairo, and in Florence. Domestic seminar programs in 1990 featured an impressive, hand-picked faculty and offered special access to Smithsonian collections, major exhibitions, research facilities, and skilled curatorial staff. Eight seminars were held in Washington, D.C., including "America's Future in Space," "American Coins and Currency," "150 Years of American Art," "Twentieth-Century Furniture" and "Animal Communications."

Beyond Washington, 60 Associates visited the Smithsonian's Whipple Observatory in Arizona for the seminar "The New Astronomies." Marine scientists welcomed Associates for the first time to the Smithsonian Marine Station at Link Port in Florida for studies in marine biology. Santa Fe, New Mexico, offered a unique setting for the study of Southwestern art and archaeology.

More than 60 Domestic Study Tours in 1990 provided Associates with a variety of opportunities to experience the natural wonders and regional heritage of America. Active outdoor tours help to increase understanding and appreciation for conservation of natural resources. Popular hiking programs were repeated to Yosemite, Big Bend, Bryce Canyon, and Zion National Parks. Associates camped in Idaho while rafting the Salmon River and explored the Grand Canyon while running the rapids on the Colorado River. A trip to wildlife refuges in South Texas included a side trip to Arkansas where the endangered whooping crane spends the winter. Learning techniques for using binoculars and for locating and identifying birds introduced many Associates to a lifelong hobby. A new family-oriented nature program in the Colorado Rockies was enthusiastically received by a group ranging in age from 7 to 70.

Weekend programs continue to be popular with Associates interested in a shorter, less expensive study tour. In addition to art and architecture programs in New York, Chicago, and Philadelphia, four new tours to the South Rim of the Grand Canyon were offered, featuring nature walks and lectures.

Smithsonian Resident Associate Program

Smithsonian photographer Eric Long captured his daughters Jeannie (foreground) and Meghan on film during the Kite Festival in April.

The Smithsonian Institution's privately supported cultural, continuing education, membership, and public outreach arm for metropolitan Washington, D.C., is the Resident Associate Program (RAP). This year, RAP continued to build on its tradition of bringing to its constituencies a rich mix of cultural and educational programs, while increasing its emphasis on multicultural diversity and worldwide environmental concerns consonant with the interests of the Institution.

In 1990, audiences could choose from programs as diverse as the electrifying music of Brazilian guitarist Toninho Horta; a stirring performance of *Audience*, a play written by Czechoslovakian President Vaclav Havel; and a historic dialogue between curator extraordinaire Walter Hopps and premier art dealer Leo Castelli. The program offered 1,928 high-quality activities, attended by more than 323,000 adults and young people. Membership in the Resident Associate Program numbers 56,000, representing 106,000 persons, in addition to area contributing members who participate avidly.

During this fiscal year, RAP began to lay the groundwork for the fall 1990 celebration of its 25th anniversary, planning more than 25 programs that brought a dazzling array of luminaries to Washington. The celebration got off to a grand start with a generous gift from Riggs National Bank, quickly matched and surpassed by contributions from RAP members, Contributing Members, and corporate donors.

As part of its 25th anniversary celebration, RAP commissioned internationally acclaimed artist Jacob Lawrence to create *On the Way*, a 12-color lithograph in a signed and numbered edition of 100. Well-known children's book illustrator Tomie dePaola was also commissioned to create a festive watercolor-and-pencil poster in a signed and numbered edition of 500.

RAP's extraordinary combination of program excellence and community outreach continued to attract the attention of both local and national media. Its monthly publication, the *Smithsonian Associate*, won first prize for newsletters in the Blue Pencil Awards of the National Association of Government Communicators. The 24th annual Smithsonian Kite Festival, cosponsored by RAP and open to members and the general public, brought 5,000 people to the National Mall to fly their colorful creations and received major local and national media attention. RAP's premiere of the Oscar-winning film *Glory*, enlivened by the attendance of actors in Civil War regalia, drew national television coverage.

Cooperation with Smithsonian Bureaus and Offices

RAP joined forces with Smithsonian museums to present programs tied to major exhibitions. Among the cosponsorships were an adult course in Buddhist art with the Arthur M. Sackler Gallery, complementing the exhibition "The Noble Path: Buddhist Art from South Asia and Tibet"; discussions with actor Douglas Fair-

banks, Jr., and veteran journalist Edward P. Morgan conducted by Marc Pachter, biographer and assistant director of the National Portrait Gallery; and a four-part lecture series, *Talks on the Wild Side*, with the World Wildlife Fund and the National Zoological Park. An adult course on the exhibition "Icons: Ideals and Power in the Art of Africa" and a lecture by Rowland Abiodun, both sponsored with the National Museum of African Art, enhanced the exhibition "Yoruba: Nine Centuries of African Art and Thought." A course complemented the Renwick Gallery's exhibition "Masterworks of Louis Comfort Tiffany." An all-day seminar with the National Museum of Natural History on the secrets of ancient Egypt was based on the exhibition "The First Egyptians." With the National Museum of American Art, a studio arts workshop on painted furniture was held in coordination with "Treasures of American Folk Art." Evenings with contemporary artists Donald Sultan and Jeff Koons and museum director, author, and lecturer Henry T. Hopkins were cosponsored with the Hirshhorn Museum and Sculpture Garden. Alternative strategies for political and social reform were the focus of a powerful all-day seminar in conjunction with the Kennan Institute for Advanced Russian Studies, Woodrow Wilson International Center for Scholars. Brian Duff, special assistant to the director of the National Air and Space Museum, dazzled RAP audiences with a preview of the museum's ambitious new film, *The Blue Planet*.

RAP made beautiful music with the Hirshhorn Museum and Sculpture Garden's Twentieth-Century Consort series. The Smithson String Quartet, the Smithsonian Chamber Orchestra, the Smithsonian Chamber Players, and the Castle Trio performed again under National Museum of American History and RAP auspices.

Outreach

Service to the community is a RAP hallmark. RAP's Afro-American Studies Department, with the assistance of grants from the Smithsonian's Educational Outreach Program and the Hattie M. Strong Foundation, began a pilot program, "Project Excellence in Afro-American Studies," to encourage African American high school students to explore their heritage as reflected in the arts, humanities, and sciences. The pilot project offers 26 selected at-risk high school students in the Washington metropolitan area an opportunity to undertake intensive summer study of the comprehension and criticism of African American literature under the tutelage of a college-level instructor.

Each year, RAP's Discover Graphics program involves 200 area public high school students and their teachers in the art of printmaking, with free instruction on fine Smithsonian presses. The annual juried exhibition of student prints was mounted this past year in the Escalator Gallery of the S. Dillon Ripley Center.

Another annual outreach effort is the tuition-free scholarship program for Young Associate and adult courses, awarded through the D.C. public school system. In fiscal 1990, 101 inner-city young people and 220 adults received scholarships.

Outside Collaboration

Prestigious organizations that worked with RAP to create exciting programs in fiscal 1990 included the American Institute of Architects, National Trust for Historic Preservation, American Chemical Society, National Aeronautics and Space Administration, National Learning Center of the Capital Children's Museum, Meridian House International, and the publishing house Farrar, Straus, and Giroux. An impressive lineup of legal experts took part in a course cosponsored by the Courts, Lawyers, and the Administration of Justice Section of the District of Columbia Bar, which gave a behind-the-scenes look at the practice of law in Washington. The trade secrets of 25 famous interior designers were revealed in an unprecedented six-session course presented in conjunction with *Architectural Digest* magazine, moderated by Editor-in-Chief Paige Rense.

The Asia Society of New York cosponsored "Shomyo," an unforgettable performance of sacred ritual chants of Japanese Buddhism. RAP and District Curators presented the Washington, D.C., debut of the contemporary jazz octet Eight Bold Souls. For the third year, the Beethoven Society of Washington, the Duke University–affiliated Thelonius Monk Institute of Jazz, and RAP cosponsored the popular Thelonius Monk International Jazz Piano Competition.

In an innovative move, RAP joined forces with the Teaching Company to initiate *Learning with Superstars*

of the College Classroom. The four intensive weekend seminars, conducted by outstanding professors from leading universities, are videotaped for distribution to schools and colleges nationwide.

Afro-American Studies

RAP continued to focus educational and membership efforts on Washington's African American community, with each RAP department presenting programs that brought the African American experience to life. The Afro-American Studies Department made great strides in fiscal 1990 toward realizing its goal of increasing African American participation. With a new structure and staff, it expanded its curriculum significantly and produced more varied programs. Attendance at Afro-American programs was approximately 50 percent higher than in fiscal 1989. Adult courses included "Buried Heritage: The Archaeology of African American Life" and "New Roots: The What and How of African American Genealogy Today." Headliners included Billy Taylor, Damon Evans, Kent Jordan, Nancy Wilson, the Louisiana Repertory Jazz Ensemble, the Keter Betts Trio, the Georgia Sea Island Singers, the Peabody Ragtime Ensemble, and actor John Amos. Memorable lectures were given by U.S. Representative Major Owens (D–N.Y.) and by well-known writers Itabari Njeri, Carlos Moore, Ntozake Shange, John Wideman, and Ishmael Reed.

Campus on the Mall

Through the Smithsonian Campus on the Mall, RAP provides the only Institution-wide avenue for continuing education in the arts, humanities, and sciences. Six- to eight-week lecture series and intensive weekend courses are offered in four terms each year. In 1990, RAP expanded and enriched this program, attracting an average of 5,000 participants per term to 185 programs and many more to individual sessions. The program's gross income surpassed $1 million for the first time.

Capitalizing on the success of the Western civilization and Latin American certificate of participation programs held during the past three years, RAP launched a new certificate series this year on music connoisseurship. The certificate is awarded to participants who take the required five- to seven-course curriculum within a four-year period. The University of Maryland's University College awarded academic credit for several Campus on the Mall courses.

RAP's continuing collaborations with embassies resulted in such well-attended programs as "Denmark in Perspective: Great Danes and Their Great Friends," which included appearances by the inimitable Victor Borge, Garrison Keillor, and the world-famous Kontra Quartet.

Studio Arts

The Studio Arts Department presented 222 classes and workshops in 1990, attended by nearly 18,000 participants. The programs, offered in four terms, are taught by professional artists and other experts and feature hands-on experience. The photography program, based in RAP's state-of-the-art photography laboratory, continued to be a favorite. A significant computer graphics symposium, "Infinite Illusions: The World of Electronically Created Imagery," was the highlight of the year. Classes in wearable art, neon art, *trompe l'oeil*, and stone carving were well received.

Lectures, Seminars, and Films

Lectures, weekend seminars, and premieres of major films filled Smithsonian auditoriums to capacity throughout the year, as RAP invited distinguished scholars and experts to speak on a range of current topics from arts to zoology. A total of 35,000 people attended 124 lectures; 3,200 attended 21 seminars; and 13,800 attended 46 films. Lecturers included China historian Jonathan Spence, Pulitzer Prize winner Stanley Karnow, anthropologist Donald Johanson, art historian and curator Kirk Varnedoe, mystery writer Margaret Truman, poet Lawrence Ferlinghetti, novelist Alex Haley, Judge Robert Bork, and cartoonists Pat Oliphant and Jules Feiffer. Assistant Secretary for External Affairs Thomas E. Lovejoy led a symposium on global conservation; the National Geographic Society cosponsored a series on recent changes in Eastern Europe; and

the World Wildlife Fund and the Audubon Naturalist Society joined to sponsor an animal conservation series.

Four Singles' Evenings lecture series attracted nearly 5,000 participants in equal numbers of women and men. The Tuesday Mornings series for retirees averaged more than 300 persons in each of three series of six lectures.

RAP presented spectacular Washington premieres of the films *Glory*, *Henry V*, and *The First Emperor of China*. In addition, Liv Ullman charmed her RAP audience at the Washington premiere of her latest film, *The Rose Garden*. RAP offered myriad international films throughout the year, including classics like *Nosferatu* and *Wings* (with organ music by Radio City Music Hall organist Lee Erwin), and multicultural offerings, including a film series on Native Americans.

Performing Arts

More than 30,000 people attended 115 RAP performances this year. They enjoyed the Smithsonian debut of the Washington Guitar Quintet and laughed at Joan Cushing's musical revue, *Mrs. Foggybottom and Friends*, which skewered the body politic with outrageously sharp and witty lyrics.

RAP's international offerings included Sukay, a group of musicians from South America, performing traditional music from Bolivia, Peru, and Ecuador; an ensemble of performers from the city of Sunda in Indonesia; the Women of the Calabash, saluting Black History Month with a performance of traditional African American music with a contemporary twist; the dazzling Spanish Dance Society USA; and the Living Lindy Hoppers from England, unique masters of the lindy hop and the jitterbug.

RAP continued to present great classical music performed by such impeccable artists as Menachem Pressler, the Grammy award-winning Emerson String Quartet; the Twentieth-Century Consort; the Pro Musicis Foundation Series featuring young artists; and the International Poetry Forum. Jazz was well represented by the Warren Vache Quintet and Ken Peplowski, while bluesman and songwriter Henry Townsend had the "Tears Come Rollin' Down" in a program of country blues cosponsored with the D.C. Blues Society.

Study Tours

In 1990, some 16,000 people participated in 525 study tours. From Smithsonian exhibitions to historic sites, nature preserves, Broadway, and beyond, RAP participants traveled in search of new experiences expertly presented. Events ranged in length from local walking tours to out-of-town overnight trips. Some of the most popular programs included RAP's in-depth study tours of Civil War battlefields; a trip to historic Beaufort, South Carolina; and excursions to New York to see major museum exhibitions and Broadway hits. Free tours were also offered to RAP members each month.

Tours of Washington artists' studios and galleries, visits to historic African American churches, boat trips on the Chesapeake Bay, birding excursions, star-gazing in the Blue Ridge mountains, spelunking in the Shenandoah, and bus trips to craft fairs and historic houses in nearby states all attracted enthusiastic participants, as did RAP's popular excursions along the Chesapeake and Ohio Canal and local rail lines.

Young Associates and Family Activities

More than 13,000 young people aged 4 to 15, along with parents and other family members, participated in a total of 209 activities. Such perennial favorites as the Halloween costume party, the winter holiday film and party, and the summer "Evening Picnic at the Zoo" attracted enthusiastic participants of all ages. The Kite Festival drew visitors from 33 states. RAP celebrated Children's Book Week with the world premiere of the film *Ashpet: An American Cinderella* by noted filmmaker Tom Davenport. And the spirit of *glasnost* became a reality for young people who spent a day with children of the Soviet Embassy, met cosmonaut Valeriy Kubasov at the Apollo-Soyuz exhibit, or celebrated—UNICEF's International Children's Day at the Czechoslovakian Embassy. The highly successful Smithsonian Summer Camp sizzled with 28 sessions of such fun-filled learning experiences as "Moon Travelers," "Super Sleuths," and "Mountain Music, Mountain Crafts."

Office of Congressional Liaison

Discovery Theater

During its 12th season, Discovery Theater offered 400 performances for 71,751 young people and their families. Ten productions were presented, all with learning guides. In February, to celebrate Black History Month, Discovery Theater produced "We the People," a dramatic reenactment of the historic debate between black abolitionists Frederick Douglass and Charles Lenox Remond. The production was mounted in collaboration with the National Park Service, Howard University, and the Duke Ellington School of the Arts. Discovery Theater expanded its season by offering well-attended and well-received summer performances during July.

Volunteers

RAP's more than 400 volunteers were recognized for their significant contribution of time, talent, and energy at a reception held at the Arthur M. Sackler Gallery last fall. Assisting as monitors for programs, as well as providing essential office support, RAP volunteers performed well over 26,000 hours of invaluable service last year.

Reflecting the diversity of disciplines represented at the Smithsonian, legislation monitored by the Office of Congressional Liaison covered several broad issues. Foremost among the legislative efforts initiated by the Board of Regents during 1990 was the bill to create a Smithsonian Institution Senior Service, authorizing parallel procedures and incentives for all Smithsonian senior-level executives, managers, scholars, and researchers. The office continued to represent Smithsonian priorities in museum collections care through such facilities expansion as the extension to the National Air and Space Museum at Washington-Dulles International Airport. Ongoing issues related to the establishment of the National Museum of the American Indian, and initiatives in biological diversity also required institutional communication with Congress.

Office of Special Events

The Office of Special Events organizes events and programs throughout the Smithsonian that are instrumental in developing and maintaining relationships with constituencies and support groups. In 1990, the office coordinated several hundred activities with other Smithsonian offices, corporations, and outside groups whose missions coincide with those of the Institution.

The events and programs were diverse. They included involvement in the annual Martin Luther King, Jr., Day observation, Earth Day, the secretary's staff holiday party, the I Have A Dream Foundation awards, the unveiling of a bust of Secretary Emeritus S. Dillon Ripley, the Marconi International awards dinner, and the World Economic Forum reception and dinner for donors and lenders preceding the opening of "Yokohama: Nineteenth-Century Prints from Japan" at the Arthur M. Sackler Gallery.

The office has advised and assisted staff members working on new development and membership initiatives, such as Smithsonian Salutes! receptions in Houston, Los Angeles, Palm Beach, and Minneapolis for donors, Contributing Members, and their guests, as well as a reception for Native Americans in Santa Fe.

The office also served as a clearinghouse for more than 1,000 telephone requests from outside groups that wished to cosponsor an event at the Smithsonian and use the Institution's facilities.

Office of Telecommunications

During 1990, the Office of Telecommunications (OTC) continued to extend the Smithsonian's reach through electronic media. Produced in close cooperation with curators, historians, and scientists, the office's programs explored a range of Smithsonian interests and captured many top awards. The office produced or developed programs focusing on the importance of biological diversity and the richness of the nation's multicultural heritage. New productions also included the Institution's first "videowall," state-of-the-art interactive videodiscs, and numerous programs for exhibitions and broadcast.

The Smithsonian's first multiscreen videowall, *The New Age*, created under the supervision of the Office of Telecommunications, premiered in May in a new exhibition at the Museum of Natural History. (Photograph by Eric Long and Jeffrey Tinsley)

Program Production

The office produced the Smithsonian's first "videowall" presentation, providing a fitting close for the exhibition "Information Age: People, Information, & Technology" at the National Museum of American History. Presented on 12 screens, the program repeats the main themes of the exhibition, stressing that computers and information-age machines are tools for human use.

Working with the International Center, the office created a video based on the conference "The Global Environment: Are We Overreacting?" The program, narrated by John Chancellor of NBC News, was distributed to newspaper editors and television news directors around the country, reinforcing the need to focus attention on crucial environmental issues.

In collaboration with the National Museum of Natural History, the office produced four pilot segments for "Natural History Update," a series of short features conceived by museum Director Frank Talbot. Topics in this pilot series included the discovery of a mosasaur fossil in Oxon Hill, Maryland, and the damage that Hurricane Hugo caused to Puerto Rican forests. The museum is actively seeking funds to continue the series in cooperation with other museums around the country.

New Smithsonian interactive videos and an orientation video, produced by the office for the Visitor Information and Associates' Reception Center (VIARC), premiered in November 1989 with the opening of the Smithsonian Information Center in the Castle. Designed to help visitors plan their museum tours, the programs have won a number of awards. With VIARC, the office launched an effort to market the 20-minute orientation film as a home video beginning in fiscal 1991.

The weekly "Radio Smithsonian" series now airs on 90 radio stations nationally, reaching a potential weekly audience of 4 million people. Its programs focus on exhibitions, research, and performance activities throughout the Institution and continue to garner important awards.

Program Development

The office developed plans for a major film to acquaint American audiences with the historical and cultural significance of Japanese gardens and their importance in Japan's landscape. Funded by the Kajima Corporation, Hitachi Ltd., and the American Family Life Assurance Company, this one-hour film is being produced in conjunction with the Arthur M. Sackler Gallery. It is intended for both broadcast and educational use. Shooting began in the fall of 1990, with completion targeted for late 1991.

The office has joined with the Native American Public Broadcasting Consortium to produce a 13-part radio series looking at the Columbus encounter and its aftermath from the Native American perspective. The Corporation for Public Broadcasting has awarded $224,000 toward production and distribution of this special Quincentenary series. Noted Native American producer Peggy Berryhill is the coordinating producer, working with OTC staff. The series will air on public radio starting in early 1992.

Working with the deputy assistant secretary for media, the office developed production, financial, and marketing plans for new programs in the Smithsonian Video Collection. Future programs will be targeted for broadcast, as well as for the home video market. The Smithsonian obtained all rights to the first five programs in the series from Eastman Kodak, the original distributor, and early sales results were promising.

Marketing

The office placed increased emphasis on marketing and promotion in 1990. The staff began implementing a broad plan for the sale of an earlier OTC film, "The Movie Palaces," to Smithsonian audiences through the Museum Shops and to a general audience through mail-order catalogues and historic preservation groups. Detailed strategies were completed for the marketing and promotion of the entire Smithsonian Video Collection, as well as for the one-hour environmental program "The Earth in Our Hands." These efforts will help ensure greater visibility and maximum revenues for Smithsonian programs and help support future productions.

Smithsonian Institution Press

As recently as the 1970s, the Smithsonian Institution Press was, as it had been for its first century and a quarter, a small office publishing a handful of books, each reflecting the work of a few of the Institution's scholars and having little impact on the academic world or among the wider public. Today the Press, with an active list of 500 titles, is a full-fledged publishing house competitive with the top university presses worldwide. Reviews of its books and recordings confirm the Press as an important contributor to the world of academic publishing, as well as to a wider group of sophisticated readers attracted by serious thought and scholarship. Although the Press cannot reach all audiences, it does act on its responsibility to fulfill the Institution's goal of diffusing knowledge among as broad a spectrum of the public as possible. At the same time, it maintains standards of excellence that give its books and recordings the right to bear the Smithsonian name.

The Press is composed of the University Press, Smithsonian Books, the Smithsonian Collection of Recordings, and the Book Development Program. In addition to the 120 books and recordings issued this year, another 250 publications were produced as part of the Press's ongoing service to Smithsonian bureaus and offices. Press publications thus include research monographs, technical and scientific series, exhibition catalogues, trade books, sound recordings, archival videodiscs, videotapes, and more. In the process, the Press provides a full range of publishing functions, including editing, design, proofreading, production, marketing, distribution, and promotion.

University Press

The University Press acquires, publishes, and markets trade books for the scholarly reader and for the serious but less specialized reader on subjects related to Smithsonian activities and interests. It also carries out a number of publishing functions for the Institution at large, including the federally funded *Contributions* and *Studies* series in nine disciplines, *Smithsonian Year*, *Smithsonian Year Supplement*, the *American Historical Association Annual Report*, and booklets, invitations, newsletters, brochures, and posters for Smithsonian bureaus and offices.

During the past several years, the University Press has concentrated its efforts on expanding and refining the focus of its seasonal lists and increasing the quality and quantity of the books produced. New series with distinguished scholarly boards have been established in ethnology, archaeology, evolutionary biology, and aviation history. Among the titles published in fiscal 1990 are *Smithsonian's New Zoo*, *Puerto Rico Mio: Four Decades of Change in Photographs by Jack Delano*, *The Art of Exclusion: Representing Blacks in the Nineteenth Century*, *The Exploratorium: The Museum as Laboratory*, *The Real McCoy: African-American Invention and Innovation, 1619–1930*, and *Cloth and Human Experience*.

Smithsonian Books

Smithsonian Books publishes books for a general audience on subjects that relate to Smithsonian collections and research interests. Marketed primarily by direct-mail promotion to Smithsonian Associates and other mailing lists, these highly informative, visually attractive books are also available to the general public through licensing arrangements with several trade publishers and through the 20-person sales force of the Smithsonian Institution Press.

In fiscal 1990, Smithsonian Books published *Editor's Choice*, an anthology of selected *Smithsonian* articles to commemorate the magazine's 20th anniversary, and a sequel to the best-selling *Smithsonia: Book of North American Indians* titled *After Columbus: The Smithsonian Chronicle of the North American Indians*.

Smithsonian Collection of Recordings

The Smithsonian Collection of Recordings produces original and archival sound recordings ranging from classical to country, from American musical theater to classics of American jazz. Boxed sets, usually consisting of four compact discs, six vinyl records, or four cassette tapes and accompanied by liner notes in paperback book form, are sold to various audiences primarily through direct mail. Recently, the division has pursued coproductions with domestic and foreign affiliates. Since the first of these releases in 1989, five co-

productions have been issued, with more planned during the next three years. A series of recordings by the Smithsonian Chamber Players is being produced in association with the German record company deutsche harmonia mundi. This series is now distributed worldwide by BMG Classics. Other international agreements include coproductions with the French record company ADDA. The Smithsonian Collection of Recordings also collaborates with the National Museum of American History's Division of Musical History and other music history institutions in the United States. An important 1990 release is *J. S. Bach*, which features the *St. John Passion* performed by the Smithsonian Chamber Chorus and Players, along with works for solo violin and solo harpsichord.

Book Development Program

Now in its third year, the Book Development Program continued to expand its list of general titles for the museum visitor. The latest entries in its popular series of postcard books feature highlights of the collections of the Hirshhorn Museum and Sculpture Garden, the National Museum of American Art, and the National Museum of American History and its Warshaw Collection of Business Americana. *A Smithsonian Picture Tour* was added to the recently launched series of large-format pictorial overviews of Smithsonian museums. The major project for the year was the revision of the *Official Guide to the Smithsonian*, published simultaneously in English, German, French, Spanish, and Japanese. The Book Development Program also broke new ground in 1990 with its first nonfiction children's trade book. *The Dream Is Alive* is based on the popular movie shown to visitors at the National Air and Space Museum. The program is developing several other initiatives in publishing for children, a long-standing Press objective.

Smithsonian Magazine

Smithsonian magazine celebrated its 20th anniversary in April 1990. Since that month was also the 20th anniversary of Earth Day, the magazine appropriately published a special issue on the environment. Essays by Wallace Stegner, Bil Gilbert, and William MacLeish on the past, present, and future of the environmental movement led off the issue; they were followed by stories covering everything from garbage to the cleanup of the Connecticut River. Response to the issue was excellent. A number of newspaper reviewers praised it, and a poster based on the lead story artwork has sold 40,000 copies.

Other articles on environmental topics published during the year dealt with the decommissioning of nuclear power plants and the impact of shrimp fishing on sea turtles. In November, the magazine again addressed tropical deforestation with a major article on the rubber tappers and Indians of the Brazilian rainforest. Flying his small airplane to remote Amazonian villages, author Michael Parfit provided in-depth reporting and a fresh perspective on the situation there.

In October, in recognition of the agreement between the Smithsonian and the Museum of the American Indian, Heye Foundation, the magazine ran a cover photograph and a photo essay on objects from the Heye collection. Feature stories on Smithsonian exhibitions included those on Winold Reiss, Albert Pinkham Ryder, and the "Five of Hearts." Other Institution activities received regular coverage in three of the magazine's departments: "Around the Mall," "Smithsonian Highlights," and "The Object at Hand." Contributions to the magazine from Institution staff included the secretary's column, columns by National Zoological Park Director Michael H. Robinson, an article by National Museum of American History Director Roger Kennedy on the Greek Revival, and a story by Zoo Curator John Seidensticker and Susan Lumpkin on opossums.

Major science stories during the last year included those on James Watson and the human genome project and on the solar maximum. In the arts, stories covered an array of subjects, from Jasper Johns to Frederic Church to dancer Jacques d'Amboise and his work with inner-city children.

Other articles were wide ranging, both geographically and culturally. There were stories on the restoration of Angkor Wat, African wall paintings, recent Mayan discoveries in Belize, and Canada's Museum of

Civilization. Other articles dealt with Turkey's new dams and their impact on archaeological relics, the new generation of jazz musicians, the black sculptor Richard Hunt, the Brazilian landscape architect Roberto Burle Marx, and the retracing of Coronado's explorations.

While *Smithsonian* may properly be regarded as a benefit of membership in the Smithsonian Associates, it is also a product that must stand on its own. The magazine is subject to the nationwide economic conditions that affect all magazines; good years for magazines in general are also good years for *Smithsonian*. A cyclical softness in the economy during 1990 has caused a downturn in magazine advertising and an increased resistance to direct-mail promotion. Steeply increased postal costs in early 1991 will be difficult to deal with, since they will increase at a rate higher than the inflation rate of the rest of the economy and cannot be offset by an increase in subscription prices.

Advertising and circulation have been on a plateau for several years; the magazine carries approximately 1,000 pages of advertising annually. An important indicator of the magazine's stability has been its healthy, steady renewal rate. Circulation continues to hold at 2.3 million.

Smithsonian has for many years delivered a substantial surplus to the unrestricted funds of the Institution and will continue to do so. The amount of surplus will depend partly on general economic conditions, but also on the ingenuity and creativity of the magazine's staff.

The magazine's effort to improve minority participation in the magazine publishing industry entered a second phase this year. Last year, in concert with the Howard University School of Continuing Education, *Smithsonian* founded the Howard University Magazine Publishing Procedures Course, which brought together experts from the magazine community and participants from the publishing field interested in enhancing their careers. This year, with *Smithsonian* participation, responsibility for the course was assumed by the Magazine Publishers of America.

Air & Space/Smithsonian Magazine

Air & Space/Smithsonian magazine sustained its circulation in a year when many magazines were retrenching. Audience response continues to reflect approval of the material the magazine provides, and there is growing acceptance of the publication as one of the most widely read magazines in the field of aerospace and its applied sciences. Newsstand sales showed strong growth, and early returns indicate that a redesign of the magazine's cover was successful in strengthening newsstand sales.

Air & Space/Smithsonian embarked on two definitive series during the year: "A Permanent Presence," examining the issues surrounding a human presence in Earth orbit and beyond, and a three-part history series recalling "The Battle of Britain/50 Years Later."

The February/March 1990 edition carried an education insert provided by the Boeing Company. The June/July edition included a supplement titled "Photos of Flight," featuring many images from the National Air and Space Museum's photographic collection.

"Smithsonian World"

"Smithsonian World," the prime-time television series coproduced by the Institution and public television station WETA-TV, Washington, D.C., launched its fifth season in the winter of 1990. A reception hosted by the sole corporate underwriter of the series, Southwestern Bell Corporation, was held in the newly renovated Great Hall in the Smithsonian Castle. The fifth season's critically acclaimed one-hour specials—"Zoo," "A Moveable Feast," "Tales of the Human Dawn," "Nigerian Art—Kindred Spirits," and "The Quantum Universe"—were broadcast nationally from January through June 1990 on PBS. In September, "Smithsonian World" won the prestigious Emmy Award for Outstanding Informational Series.

In tandem with these original broadcasts, Southwestern Bell Corporation underwrote a major advertising and promotion campaign, with award-winning four-color one-page advertisements featured in such national magazines as *Atlantic*, *TV Guide*, *Scientific American*, and the *New York Times Magazine*. As part of "Smithsonian World's" Summer Encore Season, the 10 programs from its fourth and fifth seasons were aired nationally from July through September 1990 on PBS.

Additional awards this year for fourth-season programs included a Bronze Medal for "American Dream at Groton" and a Silver Medal for "Web of Life," both from the International Film and Television Festival of New York; Bronze Plaques for "Web of Life" and "American Dream at Groton" from the Columbus International Film and Video Festival; and Cine Golden Eagle Awards for "The Living Smithsonian," "Web of Life," and "The Vever Affair."

Under newly appointed Executive Producer Sandra Wentworth Bradley, production for season six began in the spring of 1990. Scheduled to air in 1991 are "Gender: The Enduring Paradox," "Selling the Dream," "From Information to Wisdom," "A Certain Age," and "The Doors of Perception." These programs will bring to 32 hours the amount of original programming "Smithsonian World" has produced that examines unique concepts and ideas based on the broad-ranging disciplines within the Institution.

INSTITUTIONAL INITIATIVES

Alice Green Burnette, Assistant Secretary for Institutional Initiatives

Secretary Adams created the Office of the Assistant Secretary for Institutional Initiatives in July 1989 to undertake new and long-range projects and monitor their development until they can become fully incorporated into the Institution. To lead these initiatives, the secretary appointed Alice Green Burnette as assistant secretary. By focusing on the advancement of a few projects, the office can ensure that initiatives of high priority to the Institution become realities.

One significant new program is the development of the National Museum of the American Indian. The Office of Institutional Initiatives has been charged with a lead role in planning for the new museum and is working closely with its founding director, W. Richard West, Jr. Legislation creating the museum requires the Institution to provide, from its own resources, one-third of the construction costs for the museum facility to be built on the National Mall. To meet this requirement, the office will spearhead a national fund-raising campaign. To initiate planning for the campaign, the office solicited the counsel of the J. Richard Taft Organization, which prepared a report that was approved by the Board of Regents in September 1990. The campaign will begin working in the fall of 1990 in donated office space and will continue through 1996. In addition to raising funds, the campaign will provide an opportunity for individuals of Native American heritage to train as fund-raisers in order to generate resources for other causes benefiting their communities.

The Office of Institutional Initiatives is also pursuing other programs that advance the Institution's aims. Of special note is the encouragement of an expanding relationship between the Smithsonian and institutions of higher education. While exploring ways to achieve this goal, the office has sponsored seminars at Spelman College in Atlanta, Georgia. The "Smithsonian at Spelman" series provided an opportunity for Spelman students to meet in an intimate setting with Smithsonian staff and management. These seminars expanded the career horizons of minority students by exposing them to new and dynamic opportunities. The Office of Fellowships and Grants maintains a continuing relationship with Spelman students who expressed an interest in pursuing internships and careers in fields related to Smithsonian programs.

ADMINISTRATION

John F. Jameson, Assistant Secretary for Administration

Administrative and Support Activities

Operating primarily behind the scenes at the Smithsonian, a network of administrative and technical support offices serves the diverse operations of the Institution. These offices underpin scholarly and public activities and ensure central oversight of and accountability for the management and use of financial, human, and physical resources. Fourteen offices and their divisions serve a range of functions from protection services to facilities construction, from duplicating to information resource management. Funding for central services in 1990 amounted to about 7 percent of the Institution's total operating expenses, exclusive of maintenance, operation, and facilities protection costs.

Office of Design and Construction

To improve its service to the Smithsonian bureaus, the Office of Design and Construction (ODC) was reorganized to permit improved coordination and control of its activities using structured project management techniques. Positions for nine project managers, each responsible for a discrete group of facilities, have been created. The new managers will coordinate projects from inception to completion, drawing on the professional and technical staff of the office for support as needed. Communications with project sponsors and facility staff will improve with the designation of a single ODC staff contact for each facility, and the overall planning and coordination of projects within facilities will improve as one manager becomes responsible for all construction. The reorganization was accomplished largely through reassignment and reclassification of current employees.

With the assistance of a contractor and a steering committee of representatives from the major bureaus, ODC began to create a facilities inventory and strategic plan for the Smithsonian. During the coming year, the project will include development of a computer-aided design (CAD)–based space inventory that will help planners and facility managers predict and plan for their space requirements. Before it is extended throughout the Institution, the system will be tested at the Freer Gallery of Art. A master plan for all Smithsonian-owned and leased facilities will also be developed. This plan will describe the composition of each facility, identify each bureau's need for space, and present options for meeting those needs on the basis of cost, availability, and suitability.

ODC managed about 40 construction projects during the past year and had more than 100 other projects in the planning or design phases. Significant planning projects included comprehensive site evaluation for an extension of the National Air and Space Museum and a massing study and estimate for a collections storage and research center in Suitland, Maryland. Major construction, repair, and renovation projects have included a link to the Quadrangle and other additions and alterations for the Freer Gallery of Art; construction of a laboratory and conference center at the Smithsonian Tropical Research Institute in Panama; construction of the base camp for the Whipple Observatory in Arizona; and replacement of the terrace at the National Air and Space Museum.

Office of Environmental Management and Safety

The Office of Environmental Management and Safety (OEMS), in conjunction with the Office of Design and Construction, developed and conducted an intensive construction safety training program for construction representatives. Nine ODC staff have completed the 12-module course, which is based on Occupational Safety and Health Administration construction standards. Several nationally recognized safety-related weeks were observed throughout the year at the Smithsonian. An OEMS staff member was chosen to represent the United States and to present a paper at an international symposium, "Fire Protection for Historic Buildings and Towns," held in Norway. Another staff member represented the Smithsonian at the Eighth International Conference on Fire Protection, held in Germany.

Office of Plant Services

The Office of Plant Services installed a wide-area computer network to support the newly developed integrated stock inventory control and purchasing system. Partnerships with local utilities companies continue, and the Institution was recognized by the Potomac Electric Power Company for ongoing energy conserva-

tion initiatives. Facilities maintenance and repair inspections also continue; the automated facilities monitoring program is a model program for monitoring and controlling lighting, temperature, and humidity conditions. Facilities in New York City related to the National Museum of the American Indian were inspected, and corrective actions were undertaken to bring it in compliance with Smithsonian standards. Staff worked closely with the Heye Foundation to ensure a smooth transition of existing Museum of the American Indian facilities to the Smithsonian. In addition, staff participated in a number of planning and design initiatives for the Custom House in New York City and the construction of an addition to the NMAI Research Branch that will facilitate the move of objects to Washington.

Office of Protection Services

Visits by heads of state and other dignitaries required close cooperative efforts between Office of Protection Services (OPS) security staff and officials of the Secret Service, State Department, and other jurisdictions. In October, the Protection Division's K-9 Unit received favorable coverage in the *Washington Post*. Security staff were recognized for their quick response in the apprehension of an assailant of U.S. Senator John Glenn while the senator was attending an event held at the National Air and Space Museum.

OPS also provided security escorts and made significant recoveries of collection items as a result of investigations. The occupational health program was expanded in the New York area to include hearing conservation audiograms and asbestos medical surveillance exams. As a result of a favorable evaluation of a new hyperbaric treatment chamber in Belize, Central America, Smithsonian divers at the marine station in Carrie Bow Cay may receive emergency care for underwater accidents.

In an effort to assist smaller museums and galleries that have limited training and travel budgets, the 13th annual National Conference on Museum Security was held in Chicago in concert with the Art Institute of Chicago. Speakers at the conference addressed topics ranging from art theft to construction security. Smaller museums and galleries continue to look to the Smithsonian as a preeminent training source and often refer their security personnel for specialized instruction provided by headquarters staff. Long recognized as the foremost authority on museum security, the OPS provided consultative services to Isabella Stewart Gardner Museum officials and French museum officials after collection thefts.

With the transfer of the Museum of the American Indian, Heye Foundation collection and other assets to the Smithsonian Institution, the Office of Protection Services' security responsibility now extends to multiple locations in metropolitan New York City.

Office of Architectural History and Historic Preservation

Development of a program for historic preservation characterized the year for the Office of Architectural History and Historic Preservation. Training sessions and an in-house newsletter helped to integrate the preservation concerns of the office into the work of the Facilities Services Group. The office reviewed and offered advice on an increased number of design projects of all magnitudes this year. Major research projects on the architectural history of Smithsonian buildings provided a firm base in fact for historic preservation decisions recommended by the office. An intensive year-long study of reconstruction at the Patent Office Building after an earlier fire enabled the office to provide sound and accurate information on a window replacement project for the National Museum of American Art and the National Portrait Gallery.

Office of Planning and Budget

The Office of Planning and Budget (OPB) coordinates, develops, and assesses policies and procedures for the formulation and execution of the Institution's budgets. OPB assembles an annual report of Smithsonian federal and unrestricted Trust expenditures and employment trends, updating spending, employment, and operational tendencies that provide insight into frequently asked management and budget questions. OPB provided the Smithsonian's Management Committee with an overview of base funding on unrestricted Trust funds to facilitate the possible redirection of funding.

This year's *Five-Year Prospectus, Choosing the Future*, published as a shorter, more informative publication, is reaching legislators and giving prospective individual, corporate, and foundation contributors a broader context for their support of specific programs or projects.

In collaboration with the Office of Financial Management and Planning, OPB has developed and implemented the personnel cost projection system (PCPS). This new system, which utilizes the Office of Information and Resource Management's IBM 4381 computer for central processing, allows OPB and all bureaus and offices access to appropriate personnel and payroll data through the use of personal computers and will serve as the basis for a comprehensive total cost projection system for all institutional funds. PCPS will interface with the new accounting system to be installed next year.

Office of Printing and Photographic Services

The Office of Printing and Photographic Services continued to provide photographic and duplicating services throughout the Smithsonian organizations. In addition, it undertook long-range planning to position itself more effectively for future service. In the Duplicating Branch, a long-range plan was developed and implemented to help that unit better serve the Institution. By upgrading equipment and services in phases, the branch will increase efficiency and ensure compatibility with a broad range of electronic and photomechanical printing methods. These improvements will result in greater capabilities and improved speed and quality.

The Electronic Imaging Branch was established to combine videodisc reference materials with state-of-the art image processing and transmission capabilities. The branch converts photographs to electronic forms and transmits them to remote locations; the resultant images have resolution qualities at the level of facsimile, news wire photo, and four-color separation. This capability will allow the office to make its images available to a far broader audience while preserving the originals in its archival cold storage facilities.

Office of Information Resource Management

The Office of Information Resource Management (OIRM) provides leadership in information technology throughout the Institution in planning, systems development, and support activities. This year, OIRM coordinated offices and bureaus in developing the Institution's first information resource management plan and completed a five-year communications study that will lead to the development of an integrated modern communications network. In conjunction with pan-Institutional groups, OIRM began working to define standard terminology and methods for automation of office and bureau functions. In the systems development arena, OIRM added new Collections Information Systems (CIS) data bases in the National Museum of Natural History, the National Museum of American Art, and the National Air and Space Museum. These efforts automated an additional 988,500 collections-related records. OIRM also expanded the functions and data bases of the Smithsonian Institution Bibliographic Information System (SIBIS), which now supports more than 3,000 on-line inquiries per day. In the support arena, computing capacity was increased by approximately 300 percent and communications access to distant units, including the Smithsonian Tropical Research Institute in Panama, was expanded; OIRM extended electronic mail to more than 1,000 staff and added connections to the international academic community; and more than 1,100 staff were trained through the Information Resource Center.

Office of Procurement and Property Management

As the principal acquisition office for the Smithsonian Institution, the Office of Procurement and Property Management (OPPM) contracts for the majority of goods and services used in support of Smithsonian programs, projects, and facilities. In addition, the office coordinates major projects that benefit Smithsonian programs. Goods and services contracted during 1990 included architectural services for the National Museum of the American Indian, construction services for the infant care center in the Arts and Industries Building, and concept and design services for a research vessel at the Smithsonian Tropical Research Institute

(STRI). Several notable contracts were completed, including the Earl S. Tupper Research and Conference Center at STRI, the Smithsonian Visitor Information Center, the *Life in the Ancient Seas* mural in the Paleobiology Hall, National Museum of Natural History, and an analysis of proposed sites for the National Air and Space Museum extension.

Office of Equal Opportunity

The Office of Equal Opportunity (OEO) worked with the Office of Planning and Budget to incorporate affirmative action into the overall planning and budget process. The Institution-wide affirmative action plan continued to stress the placement of African Americans, Native Americans, Asian American/Pacific Islanders, Hispanics, and women in senior and professional positions. Progress to achieve cultural diversity in key positions was reflected in the appointments of an African American man as an acting assistant secretary and an African American man as inspector general. The OEO collaborated with the Management Committee and the Office of Personnel Administration in the initial phases of the Step Up '90 program, which identifies Smithsonian employees who have promotion potential for higher-graded positions. The Smithsonian Deaf and Hard-of-Hearing Advocates Group—established in cooperation with the OEO, the Smithsonian Women's Council, and hearing-impaired employees—met regularly to address work-related issues. In conjunction with the District of Columbia Public Schools, the OEO continued to sponsor the General Equivalency Diploma program for Smithsonian employees.

Office of Personnel Administration

Based on last year's study conducted by the National Academy of Public Administration, the Smithsonian has begun a comprehensive program review of its Office of Personnel Administration. This evaluation will address not only the current management philosophy of the central personnel office, but also the nature of its service operations and support systems. Under the guidance of Director Marilyn Marton, who was appointed in September, the office will be modernized and strengthened to respond more effectively to the needs of the Smithsonian's diverse work force. In recognition of this commitment to building an improved service entity capable of providing leadership in managing the Institution's human resources, the office will be renamed the Office of Human Resources.

Management Analysis Office

The Management Analysis Office (MAO) continued to identify and promote actions to strengthen internal controls. The office conducted several reviews of Institution units and activities, including those that might reduce costs and improve efficiency by hiring outside contractors to perform commercial functions traditionally carried out by Smithsonian staff. MAO publishes a biweekly employee bulletin on timely administrative matters.

Travel Services

The Travel Services Office continued to provide efficient and economical travel services to Smithsonian employees and consultants. More than $2.5 million in air and train tickets were issued in support of a range of Smithsonian programs and activities. These included activities associated with the National Museum of the American Indian, extensive research trips both in the United States and abroad, and a growing number of conferences and workshops held in the United States, Malaysia, Mexico, and throughout South America.

Ombudsman

The Smithsonian ombudsman, a neutral party to whom staff can bring work-related problems, assisted approximately 200 employees with a variety of concerns. Based on an employee suggestion to the ombudsman, an aluminum can recycling program, with proceeds being donated to the National Children's Medical Center, was started for most of the Washington-area employees.

Smithsonian Institution Women's Council

Established in 1972, the Smithsonian Institution Women's Council identifies and studies the concerns of employees, advises management on women's issues, and strives to improve working conditions. This year the council cosponsored a two-and-one-half-day conference, "Gender Perspectives: The Impact of Women on Museums." The council also published an affirmative action brochure for employees to provide information on these activities at the Institution. Four standing committees—Benefits, Newsletter, Outreach, and Programs—carry out most of the council's tasks.

UNDER SEPARATE BOARDS OF TRUSTEES

John F. Kennedy Center for the Performing Arts

James D. Wolfensohn, Chairman

Since the John F. Kennedy Center for the Performing Arts opened in 1971, it has transformed the cultural life of the nation's capital. It is both the showcase for America's finest performing artists and the place where our nation receives outstanding artists from around the world. Through its presentations and its nationwide education programs, the center gives people of all ages the opportunity to enjoy the best of this country's performing arts.

The Kennedy Center was created by an Act of Congress in 1958 as a self-sustaining bureau of the Smithsonian Institution. As a living presidential memorial under the aegis of the Department of the Interior, the national center for the performing arts is directed by a board of trustees whose 30 citizen members are appointed by the president of the United States. Six congressional representatives and nine designated ex officio representatives of the executive branch complete the membership. In March 1990, the center's board elected James D. Wolfensohn as its new chairman.

Performing Arts Programming

The 1989–90 season at the Kennedy Center was attended by 1,381,334 people in the Opera House, Concert Hall, Theater Lab, and Eisenhower and Terrace theaters. Another 46,823 people attended the free performances presented by the Kennedy Center through its Education Department, Holiday Festival, Cultural Diversity programs, and Kennedy Center Open House Arts Festival. More than 96,000 people attended the films presented by the American Film Institute in the AFI Theater.

Several developments during 1989–90 will affect programming for the next several years. A $450,000 National Endowment for the Arts Challenge III grant will help make possible six new ballets by American choreographers to be premiered at the Opera House by six American ballet companies during the next four years. James Wolfensohn created a new division, Television and Special Projects, to develop television into the center's "seventh stage," a plan that will add dramatically to the center's standing as a national institution. Major thematic performing arts festivals will be more prominent in the Kennedy Center's future with the announcement of the 1991 Texas Festival at the Kennedy Center and the 1992 Festival of the Americas.

Dance

The 1989–90 ballet season was one of rediscovery, as the Joffrey Ballet brought back to life two long-lost classics—Nijinsky's *The Rite of Spring* and Balanchine's *Cotillon*—and the American Ballet Theatre celebrated its 50th anniversary with a spectacular gala tribute to its magnificent history. Ballet National de Marseille Roland Petit and the Australian Ballet both returned from distant shores for their second Kennedy Center appearances, and Dance Theatre of Harlem and the Boston Ballet, in its Kennedy Center debut, rounded out the season.

Dance America, sponsored by the Washington Performing Arts Society and the Kennedy Center, presented some of the country's most celebrated modern dance ensembles, including Bill T. Jones/Arnie Zane Co., the Feld Ballet, Paul Taylor Dance Company, and Urban Bush Women.

Music

An exciting and historic cultural event took place this season when the National Symphony Orchestra embarked on its first tour to the Soviet Union, led by Music Director Mstislav Rostropovich, who returned to his homeland for the first time since 1978 when the Soviet government stripped him of his citizenship. The trip, which included concerts in Japan and performances in Moscow and Leningrad, was a worldwide news event and earned the orchestra some of the finest reviews in its history.

At home, the orchestra played 28 weeks in the Kennedy Center Concert Hall and a week at the annual Casals Festival in Puerto Rico, where it was named the official orchestra of the festival.

This year, the popular Terrace Concerts—highlighting piano and vocal recitals, chamber ensembles, and orchestras—added the Family Concerts, which are ideal opportunities for parents to introduce their children to the joys of music. The performers are not only top-

National Symphony Orchestra Affiliate Artist Conductor Randall Craig Fleischer led Music Director Mstislav Rostropovich and the orchestra in Dvořák's Cello Concerto during the symphony's historic tour of the Soviet Union. (Photograph by Joan Marcus)

notch musicians, but also have the ability to communicate about their art and their instruments.

The annual Kennedy Center Friedheim Award, described by the *New York Times* as "one of the most prestigious prizes an American composer can win," was awarded to William Kraft and Ralph Shapey, who tied for first place. Lincoln Center's Mostly Mozart Festival and Chamber Music Society returned for their annual performances.

As always, a multitude of free events, many featuring performers from the Washington metropolitan area, took place in conjunction with the Holiday Festival in December and the Kennedy Center Open House Arts Festival in the fall.

Opera

The Kennedy Center Holiday Festival added a definitive production of the Christmas classic *Amahl and the Night Visitors* by Gian Carlo Menotti to its roster of seasonal traditions. Staged by Menotti in the Eisen-

hower Theater and designed by Zack Brown, the highly praised production is destined to become a perennial favorite.

The Washington Opera, under the direction of Martin Feinstein, presented seven productions from October through March: *Lucia di Lammermoor*; *Cosi fan tutte*; *Werther*; *Die Fledermaus*; the rarely seen German romp, *Merry Wives of Windsor*; the Washington premiere of the new American opera, *The Aspern Papers*; and a landmark for the company, its first-ever *Aida*.

Theater

Two Broadway-bound plays that have become New York hits launched the 1989–90 theater season: the suspenseful courtroom drama *A Few Good Men* and August Wilson's acclaimed *The Piano Lesson*. In December, the wacky characters from Tuna, Texas, returned for *A Tuna Christmas*, while the Opera House hosted *Annie II*. More musicals were in order for the rest of the year with the nostalgic *Stardust*; the energetic musical from South Africa, *Sarafina*; the spectacular Andrew Lloyd Webber production, *Starlight Express*; and the urban musical from Chicago, *Project!* In a category all its own was Frank Galati's orchestration of word, image, and music, *She Always Said, Pablo*.

Kennedy Center Associate Organizations

Many events at the Kennedy Center are produced by the center's artistic associates. The American Film Institute celebrated its theater's 20th anniversary with showings of some of its most popular programs from the past and an ongoing series of American Independent Films. The Washington Performing Arts Society presented an array of musicians and dancers from around the world in its diverse series.

Educational and Public Service Programming

The Kennedy Center has a unique responsibility for advancing all the arts as part of the education of our nation's youth. In 1990, the center's Education Department sponsored performances and related events for more than six million people nationwide through six component programs: the Alliance for Arts Education, American College Theater Festival, the National Symphony Orchestra Education Program, Theater for Young People, Educational Services, and Imagination Celebration.

The network of state Alliance for Arts Education organizations reached more than five million people in 1990 through programs and activities that focused on arts education policy development, educational services for teachers and administrators, information and resource development, awards and recognition projects, advocacy and awareness, and programs for young people. The alliance hosted the National Summit on the Arts and Education, which brought more than 350 artists and arts educators to Washington. Guests included Gian Carlo Menotti, Edward Villella, and Richard Thomas. The alliance also initiated a cultural exchange with Finland and the Soviet Union.

More than 500,000 young people and adults participated in the Kennedy Center Imagination Celebration, the national children's arts festival program held in 12 U.S. cities and Australia. Performances were given by the Acting Company, the Nikolais Imagination Dance, and many others.

The American College Theater Festival (ACTF) presented its 22nd year of programs as part of its goal to advance the finest work produced by college and university theater programs. More than 18,000 students and 2,200 faculty members representing 550 schools presented more than 850 college theater productions in 1990. ACTF also sponsored numerous awards programs in playwriting, design, criticism, and acting and cosponsored the Shenandoah Valley Playwrights Retreat.

The Kennedy Center Theater for Young People provided 200 free or low-cost performances and events to audiences of more than 90,000, acting classes to approximately 750 Washington-area young people, and playwriting workshops to 150 students.

Educational Services used the performing arts resources at the center as a basis for workshops and other educational events for 7,600 secondary school students, 1,400 teachers, and 11,000 other adults in fiscal 1990.

The Education Department commissioned new works

in 1990 from choreographer Alwin Nikolais and playwrights Jeff Church and Mary Hall Surface, which brought the total number of commissions to 38 since 1977.

The Kennedy Center sponsors a range of activities that reflect our nation's cultural and ethnic diversity, including performances, commissions, workshops, conferences, internships, and advisory and technical services in arts administration. New this year is the Young Performers Series, which presents talented musicians from Washington, D.C., schools in free lunchtime concerts, and the Cultural Passport Program, through which Washington young people who have had internships with the center and the city's other major cultural institutions will be able to attend performances throughout the year with their families. These programs are supported by the U.S. Department of Education and by private sources.

The Kennedy Center supports many free and low-priced performances and events that are enjoyed annually by more than a million people in Washington, D.C., and around the country. The Specially Priced Ticket program, the largest of its kind in the nation, makes half-price tickets to performances produced and presented at the center available to students, people with permanent disabilities, senior citizens, military personnel (grades E1–E4), and people on fixed low incomes. During the last 19 years, nearly 1.9 million half-price tickets in all seating categories have been purchased by eligible individuals. The Kennedy Center and outside producers bear the costs of the program.

In addition, 18,000 people visited and used the Performing Arts Library, which is a joint project of the Kennedy Center and the Library of Congress.

Funding

The Kennedy Center is a unique institution—a living presidential memorial devoted to the performing arts. In fiscal 1990, the National Park Service provided $8 million in funding through annual appropriations to maintain, repair, and secure the building as a presidential memorial. The Kennedy Center Board of Trustees contributes a pro rata share of certain of these costs, which totaled more than $1 million in 1990.

Artistic programming and day-to-day performing arts operations for the center and the National Symphony Orchestra are largely supported by box office revenues and private gifts. The center and the orchestra also seek funds for their wide range of free or modestly priced educational and public service activities. The $15 million in funds raised in fiscal 1990 represents 29 percent of the center's total operating budget. Of the total operating revenues, 23 percent comes from private gifts and grants and 4 percent from government sources. General membership programs of the center and the orchestra include 40,000 donors.

In its 13th year, the Kennedy Center's Corporate Fund received contributions totaling nearly $3 million from more than 350 national and international companies. John L. Clendenin of BellSouth Corporation headed this effort. Total corporate support of the center and National Symphony Orchestra's activities came to more than $3.5 million.

The Kennedy Center and the National Symphony Orchestra's joint endowment campaign to build a permanent base of financial support reached more than $37 million by the close of the fiscal year.

The Kennedy Center Honors Gala is the center's most important fund-raising event. The 1989 gala evening, which honored Harry Belafonte, Claudette Colbert, Alexandra Danilova, Mary Martin, and William Schuman, raised more than $1.4 million to support programming.

Friends of the Kennedy Center

The Friends of the Kennedy Center was founded in 1966 to foster public involvement in the center and obtain individual support through financial contributions and volunteer participation. Today, more than 40,000 members of the Friends and the National Symphony Orchestra Association provide much-needed support for the overall operations of the Kennedy Center. Although most members are drawn from the Washington, D.C., area, there are members in all 50 states.

The diversity of Friends programs opens doors to a cross section of the community, encouraging involvement in the center in a variety of ways. The Friends administers a volunteer program with more than 500 participants who work throughout the building. Volunteers provided free guided tours to more than 102,000

visitors this year and assisted more than 240,000 visitors at the Information Center. Volunteers also staff the Public Service Desk, administer the Specially Priced Ticket program, and assist with the annual Open House Arts Festival. The 4-H program, organized and managed by volunteers, makes it possible for more than 6,000 students from all over the country to visit the Kennedy Center each summer and learn more about the performing arts. The Friends also administer and staff the Kennedy Center gift shops, which generated almost $1 million in sales this year. In addition, Friends Assisting the National Symphony (FANS) volunteers organize special events to develop new audiences for the National Symphony Orchestra.

Events produced by the Friends of the Kennedy Center this year included the annual Radiothon to benefit the orchestra and the sixth annual Kennedy Center Open House Arts Festival, a day-long festival of free performances by more than 50 of the finest performing artists in the greater Washington area.

National Gallery of Art

J. Carter Brown, Director

The National Gallery of Art, although formally established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own board of trustees, the ex officio members of which are the chief justice of the United States, the secretary of state, the secretary of the treasury, and the secretary of the Smithsonian Institution. Of the five general trustees, Franklin D. Murphy continued to serve as chairman of the board, with John R. Stevenson as the gallery's president. Also continuing on the board were Ruth Carter Stevenson, Robert H. Smith, and Alexander M. Laughlin. Paul Mellon is honorary trustee.

During the year, visitors entering both of the gallery buildings numbered 5,580,005.

Exhibitions

Ten of the 21 temporary exhibitions presented during the year provided opportunities to study the work of single artists. The first major showing outside the Netherlands of the work of Frans Hals included, among the 60 paintings and small oil sketches, his earliest known work. Fifty landscapes by Frederic Edwin Church included his large-scale panoramic paintings *Morning in the Tropics*, *Niagara*, *Heart of the Andes*, and *The Icebergs*. "John Twachtman: Connecticut Landscapes" was the third in a series of exhibitions of American impressionists (William Merritt Chase and Childe Hassam were previously spotlighted). Twenty-six landscapes done by Twachtman between 1889 and 1901 on his Greenwich, Connecticut, farm and at other nearby locations explore the effects of seasons and light in several versions of the same scenes. A comprehensive survey of 125 works of another American artist, John Marin, illuminated in oils, watercolors, drawings, and etchings the artist's method of transforming images from nature. Twenty-nine genre and landscape paintings by the nineteenth-century American artist George Caleb Bingham included several of his paintings depicting life on the great rivers of the Midwest and images of rural political campaigns.

"The Drawings of Jasper Johns," 117 works spanning the artist's 35-year career, revealed in Johns's familiar images—flags, targets, numbers and optical illusions—his virtuosic draftsmanship in a wide range of

techniques and media. "Rembrandt's Landscapes" was the first major exhibition devoted to this great artist's depictions in drawings and prints of the simple cottages of the Dutch countryside. "Edvard Munch: Master Prints from the Epstein Family Collection" exhibited 94 prints on loan from one of the world's largest and finest private collections of Munch prints.

"Matisse in Morocco: The Paintings and Drawings, 1912–1913" was jointly organized with the Museum of Modern Art, New York, and, in the Soviet Union, the State Pushkin Museum of Fine Arts and the State Hermitage Museum. The motifs developed around the landscape and gardens of Tangier and the still lifes and people of Morocco inspired the artist during the rest of his career. Twelve of the 23 paintings had never been shown in the United States, and a number of the drawings were discovered during research for the exhibition.

"Kazimir Malevich 1878–1935" was the largest and most comprehensive retrospective ever held in America of the work of the Russian artist whose best-known works are abstract "Suprematist" compositions. The 175 paintings, works on paper, and architectural models, which also embraced such movements as impressionism, symbolism, neo-primitivism, and cubo-futurism, were borrowed from the Soviet Union, the Netherlands, France, and the United States.

Impressionist and postimpressionist works borrowed from two great private collections were shown during the summer months. Fifty-four paintings, watercolors, and drawings by Cézanne, Van Gogh, Gauguin, and others were lent from the collection of Walter H. Annenberg and Mrs. Annenberg. A recent acquisition, *Au Lapin Agile*, an early important painting by Picasso, was added to the exhibition in time for the opening.

"The Passionate Eye: Impressionist and Other Master Paintings from the Collection of Emil G. Bührle" included among 85 old master, impressionist, postimpressionist, and early modern works six paintings by Van Gogh and seven paintings by Cézanne. "Expressionism and Modern German Painting from the Thyssen-Bornemisza Collection" presented 34 paintings by 19 artists selected from this great collection of modern and old master paintings. A survey of recent international printmaking—more than 100 prints and illustrated books by more than 90 American and European artists—could be seen in "The 1980s: Prints from the Collection of Joshua P. Smith."

"The Sculpture of Indonesia," the first major exhibition of ancient Indonesian art in this country, inaugurated an 18-month nationwide celebration of Indonesian culture. The exhibition included more than 135 Buddhist and Hindu bronzes, life-size stone sculptures, delicate gold and silver figures, and ceremonial objects dating from the eighth through the fifteenth centuries. Among the highlights was a perfectly preserved thirteenth-century sculpture of the Goddess of Transcendental Wisdom, thought to be a portrait of the first queen of the Eastern Javanese dynasty of Singasari, and the only surviving example of a ninth-century bronze of the four-armed Siva with precious metal inlay. A special ancillary installation presented three life-size paintings by John Singer Sargent of members of a famous Javanese dance troupe he saw perform at the 1889 Exposition Universelle in Paris. The paintings remained in the artist's studio until his death in 1925 and were reassembled from private collections to be shown together for the first time in 65 years.

An exhibition of old master drawings was borrowed from the National Gallery of Scotland. The selection of 96 works created between the fourteenth and eighteenth centuries, primarily Italian and Netherlandish, included drawings by Raphael, Piranesi, Rembrandt, and Van Dyck, as well as by such French masters as Bellange, Poussin, and Fragonard.

The newly restored Bellini and Titian painting *The Feast of the Gods* was installed with color photographs showing the painting before restoration, a full-scale radiograph, and an infrared reflectogram. An accompanying half-hour film discusses the restoration of the painting. The portrayal of gods, goddesses, and satyrs enjoying a bacchanal was originally painted by Bellini in 1514, with a background landscape that was later transformed by Titian.

Education Programs

The Division of Education underwent a major reorganization to permit the development of model programs that promote communication with national and international colleagues and support major programmatic functions within the division.

The Department of Adult Programs presented talks on 13 special exhibitions and tours that examined as-

pects of the permanent collection such as decorative arts, still life painting, and depictions of weather. The department also offered a 14-week survey course titled "Art of the Western World" and a five-week course, "Masters of Nineteenth-Century Painting," in conjunction with the Annenberg and Bührle exhibitions. The department also oversaw internship programs such as the summer graduate student program, a new internship for minorities interested in the museum profession, a graduate lecturing fellowship, and a new program for Spanish curatorial fellows.

Special lectures and tours enhanced the temporary exhibitions. Seminars were offered on the expressionist paintings in the Thyssen-Bornemisza collection. A public symposium with four guest lecturers marked the opening of the Annenberg and Bührle exhibitions. In conjunction with the Malevich exhibition, a four-part lecture course on the Russian avant-garde was given. The fifth in the series of programs, "Conversations with Artists," gave visitors a chance to talk with a printmaker and a print publisher whose prints were represented in the Joshua Smith collection.

The department also oversees the gallery's film program, which offers, in addition to documentary and educational films, the work of various filmmakers in association with temporary exhibitions. A number of rarely screened German films were shown at the time of the Thyssen-Bornemisza exhibition, and a series of French films titled "The French New Wave Revisited" was shown during the Annenberg and Bührle exhibitions. In conjunction with the prints of Edvard Munch from the Epstein family collection, a series titled "A Cinema of Madness and Melancholy" and Kenneth Clark's film on Munch were shown.

The Department of Exhibition Programs produced a variety of interpretive materials for 20 special exhibitions. The staff wrote brochures for the Twachtman, Matisse, Johns, Indonesian sculpture, and Bingham exhibitions and the Annenberg and Bührle collections and a leaflet on printmaking techniques for "The 1980s: Prints from the Collection of Joshua P. Smith." The department produced six recorded tours and wrote wall texts for all exhibitions. Special programs in conjunction with the exhibitions included two performance-lectures of nineteenth-century song, legend, and music based on the moralizing Victorian parlor ballads found in the music collection of Frederic Church's home, Olana. A series of concerts presented the distinctive music of the drums, metallophones, and other gong chime instruments of the Javanese gamelan orchestra during the Indonesian sculpture exhibition.

The Department of Educational Media produced varied programming during the year. Television public service announcements were produced for the exhibitions of the Annenberg and Bührle collections and the Hals exhibition. Films and videos were produced on such varied subjects as the pilot program of the National Teacher Institute on American Art, the findings of the Visitor Study Focus Group, and the exhibition of *The Feast of the Gods*. The department also produced a 23-minute program showing representative segments of the gallery's videos and films for use by the Publications Sales Office at the Frankfurt Book Fair and prepared 37 talks and interviews to accompany the Sunday broadcast of gallery concerts on local radio station WGMS.

As part of the gallery's membership in the Museum Education Consortium, the department works with other museums to develop state-of-the-art interactive computer technologies to enhance public art instruction, classroom teaching, and self-directed learning.

The Department of Education Publications provides editorial and production support to all other education departments and produces educational publications on the gallery's permanent collections. The department's responsibilities include the revision and expansion of the gallery leaflet program. During the year, the department assembled, edited, and prepared for publication *National Gallery of Art: Guide to Resources and Programs*.

The new Department of Education Resources combines the former Extension Programs and Art Information. The Art Information staff answers written and telephone inquiries from the public and trains and supervises the more than 130 volunteers who staff the five information desks. During one period of high visitation, information desk volunteers responded to more than 7,500 questions a week, 90 percent of which concerned the gallery. Approximately 700 telephone inquiries a week were answered, and an average of 140 questions per month required special research.

Presentations of extension programs reached an all-time high of 203,424, over half of which were broadcast on network and public television. Twelve pro-

In 1990, the National Gallery of Art purchased *The Fall of Phaeton*, by Sir Peter Paul Rubens (Flemish, 1577–1640) through the support of the Patrons' Permanent Fund.

grams were transmitted by the U.S. Information Agency's WORLDNET satellite to U.S. embassies and posts in Latin America, Africa, the Middle East, and South Asia. "The Landscapes of Frederic Edwin Church," produced by the department in connection with the Church exhibition, won a 1990 CINE Golden Eagle Award.

In November, the docents of the Department of Teacher and School Programs hosted the National Docent Symposium and participated in a peer review of the docent and school tour program along with professional staff from several major museums. Teacher programs included an ongoing series of workshops that served more than 750 teachers and a National Teacher Institute on American Art that was offered three times during the summer of 1990 to 165 teachers from more than 30 states and Mexico. The department formed a local and national advisory panel of education experts to advise the staff on the content of teacher programs and school publications. Teaching packets were prepared on the Church, Rembrandt, Matisse, and Annenberg collection exhibitions. A teaching packet on impressionism and postimpressionism, using the gallery's permanent collection, was prepared for the 1990 teacher institute and tested by 16 teachers from the Washington, D.C., area. In addition, the department prepared family guides on the permanent collection and the Indonesian sculpture exhibition. A family program for the Bingham exhibition titled "Colorful Characters" focused on the people and pastimes represented in the paintings and included storytelling and a take-home art activity.

Acquisitions

Outstanding among the paintings acquired during the year were three disparate works. The dramatic and powerful mythological subject of *The Fall of Phaeton* is brilliantly illustrated in an early painting by the seventeenth-century Flemish master Peter Paul Rubens. The work depicts the moment when the son of Apollo is thrown from his chariot by Jupiter's thunderbolt, while winged female figures try to control the bolting horses. The gallery's first work by another seventeenth-century artist, the Dutch master of the nocturnal landscape, Aert van der Neer, also entered the collection. The large composition conveys with great skill the effect of the moon shining through the clouds and its reflection in a stream crossed by a bridge. A serenely beautiful *Fruit Still Life with Chinese Export Basket*, painted in 1824, is the gallery's first work by the American artist James Peale.

A number of works were added to the modern and contemporary collections. Two remarkable paintings were by the German expressionist Ernst Kirchner: the

strong and colorful *Green House in Dresden*, painted in 1909–1910, and *The Visit: Couple and Newcomer*, painted in 1922. A rare and unusual painting by Felix Vallotton, *The Church of Souain*, is one work in the artist's frequently ignored cycle of major World War I paintings. The silhouette of a ruined church against a violent yellow sky portrays the aftermath of the conflict both symbolically and realistically.

The first work by the important American abstract expressionist Clyfford Still was acquired this year. *1951–N* is a large canvas thickly painted with several layers of dark burgundy reds cut through with a cascade of bright red, with a flash of yellow at the top. Other gifts to the contemporary collection included *Look Mickey*, a work given by American Pop artist Roy Lichtenstein. Ellsworth Kelly contributed one of his beautiful bronze free-standing steles, an arc rising nearly 10 feet. A large painted aluminum sculpture, *Wall*, by Adolph Gottlieb, was given through the auspices of the artist's widow. Finally, the Collectors Committee contributed works by three notable contemporary artists: two important sculptures and a fascinating sculptural-art environment. Joel Shapiro's large bronze composition of cast bronze blocks cantilevered over the floor surface evokes a playful, dancing human figure. Martin Puryear's 14-foot long *Lever No. 3*, done in laminated, carved, and painted pine, suggests mechanical, animal, and vegetable forms. *Mirrored Cell*, by Lucas Samaras, is the largest and most complex of six such mirrored spaces the artist has created. The viewer can enter this room-sized sculpture with completely mirrored surfaces. Inside, the cell is furnished with a mirrored bed, desk and chair, toilet, and bedroom chest.

Foremost among the additions to the graphics collections were two sixteenth-century drawings, a very rare drawing from the 1550s by Antoine Caron, titled *A Cavalry Battle in Roman Dress*, and a double-sided drawing by Parmigianino. Other outstanding acquisitions were a fine red chalk drawing by Taddeo Zuccari and a double-sided sheet of figure studies by Domenico Tintoretto, the gallery's first by that artist.

Some 50 works were added through gifts and purchases to the collection of old master prints. Of particular importance are a rare fifteenth-century woodcut, *Christ on the Cross*, with gold leaf background; a complete set of 12 etched *Landscapes Dedicated to the Grand Duke of Tuscany* (1638) by Ercole Bazicaluva; and a very rare print by the British artist Paul Sandby, *Mountainous Coast with Travelers*, one of the earliest known examples of the aquatint process.

Additions to the modern prints and drawings collection included gifts of drawings by Jasper Johns, Red Grooms (*Self portrait with extra large paper hat*), and Jacob Kainen. The Gemini G.E.L. Archive was enriched by the addition of 133 works by 26 artists, and the Graphicstudio Archive was increased by 20 works by five artists. Purchases of drawings included *Scheherazade* by Jacob Kainen, *Dodo and an Older Woman Reclining before a Mirror* by Ernst Kirchner, and a *Portrait of Woman* by Paula Modersohn-Becker.

Six vintage Paul Strand photographs were added to the gallery's growing photography collection. Twenty-nine photographs by Walker Evans were acquired by gift and purchase. A major archive of his work was donated by Robert Frank, one of the most important photographers to emerge since World War II. The collection of 61 rare vintage photographs, 2,300 contact sheets, 1,000 work prints, and approximately 2,400 rolls of film constitute the major repository of Frank's art.

Center for Advanced Study in the Visual Arts

In its 10th year, the center continued its program of fellowships, meetings, publications, and research. In addition, the center continued to meet with the Association of Research Institutes in Art History (ARIAH), a union of 12 North American institutions that support advanced research. ARIAH enables member institutions as a group to develop and seek funding for jointly sponsored programs and projects and to share visiting scholars. The center also took part in meetings of the Washington Collegium for the Humanities, made up of nine research institutions.

This year, the Samuel H. Kress Foundation supported a symposium, "Eius Virtutis Studiosi: Classical and Postclassical Studies in Memory of Frank Edward Brown (1908–1988)," and the Banca Commerciale Italiana and Alitalia supported a symposium, "Intellectual Life at the Court of Frederick II Hohenstaufen." The center cosponsored a symposium with the American Academy in Rome and cosponsored the Twentieth An-

nual Sessions of the Middle Atlantic Symposium in the History of Art with the University of Maryland Department of Art History. A seminar on Prints and Prototypes was also presented.

The Kress Professor for the academic year was the distinguished scholar Milton W. Brown, who has been a resident professor at the Graduate School and University Center of the City University of New York since 1979.

Publications in the series Studies in the History of Art included volume 20, *Retaining the Original: Multiple Originals, Copies and Reproductions*; volume 22, *Italian Plaquettes*; volume 25, *The Fashioning and Functioning of the British Country House*; volume 26, *Winslow Homer*; volume 27, *Cultural Differentiation and Cultural Identity in the Visual Arts*; and volume 35, *The Architectural Historian in America*.

Regular publications included *Center 10*, an annual record of the scholarly events and research of the preceding year, and *Sponsored Research in the History of Art 9*, a directory of art history research projects supported by granting institutions in the United States and abroad for 1988–89 and 1989–90.

Departments throughout the gallery are preparing for 50th anniversary activities in 1991. The permanent collection is being reinstalled with new lighting and new labels, many works are being reframed with appropriate period frames, a new system of supplying information on the works of art to the public is being designed, fund raising has gone forward to establish a fund to purchase a special work of art, and donors are being encouraged to give works of art suitable to this landmark in the gallery's history.

Special Exhibitions

"Twentieth-Century Art: Selections for the Tenth Anniversary of the East Building." Continued from the previous fiscal year to December 31, 1990. Coordinated by Jack Cowart and Nan Rosenthal.

"Frans Hals." October 1 to December 31, 1989. Coordinated by Arthur K. Wheelock. Supported by Republic National Bank and Safra Republic Holdings, S.A., Banco Sofia, S.A., and the Federal Council on the Arts and the Humanities.

"Frederic Edwin Church." October 8, 1989, to March 18, 1990. Coordinated by Franklin Kelly.

"John Twachtman: Connecticut Landscapes." October 15, 1989, to February 11, 1990. Coordinated by Deborah Chotner. Supported by Bell Atlantic.

"Expressionism and Modern German Painting from the Thyssen-Bornemisza Collection." November 19, 1989, to January 14, 1990. Coordinated by Charles S. Moffett. Supported by the Federal Council on the Arts and the Humanities.

"The 1980s: Prints from the Collection of Joshua P. Smith." December 17, 1989, to April 8, 1990. Coordinated by Ruth E. Fine.

"Reinstallation of Bellini/Titian *Feast of the Gods*." January 14 to April 29, 1990. Coordinated by David Alan Brown.

"Selections and Transformations: The Art of John Marin." January 28 to April 15, 1990. Coordinated by Ruth E. Fine.

"Matisse: *Jazz* and Other Works on Paper from the National Gallery Collection and Promised Gifts." February 25 to June 3, 1990. Coordinated by Ruth E. Fine.

"Rembrandt's Landscapes: Drawings and Prints." March 11 to May 20, 1990. Coordinated by Margaret Morgan Grasselli. Supported by the Federal Council on the Arts and the Humanities.

"Matisse in Morocco: The Paintings and Drawings, 1912–1913." March 18 to June 3, 1990. Coordinated by Jack Cowart. Supported by the Richard King Mellon Foundation and the Federal Council on the Arts and the Humanities.

"Gardens on Paper: Prints and Drawings 1200–1900." April 1 to July 22, 1990. Coordinated by Virginia Clayton. Supported by Estee Lauder, Inc.

"The Passionate Eye: Impressionist and Other Master Paintings from the Collection of Emil G. Bührle." May

6 to July 15, 1990. Coordinated by Charles S. Moffett. Supported by Martin Marietta Corporation and the Federal Council on the Arts and the Humanities.

"Masterpieces of Impressionism and Post-Impressionism: The Annenberg Collection." May 6 to August 5, 1990. Coordinated by Charles S. Moffett.

"The Drawings of Jasper Johns." May 20 to July 29, 1990. Coordinated by Ruth E. Fine and Nan Rosenthal. Supported by Ford Motor Company and the Federal Council on the Arts and the Humanities.

"Edvard Munch: Master Prints from the Epstein Family Collection." May 27 to September 3, 1990. Coordinated by Andrew Robison. Supported by Statoil.

"Old Master Drawings from the National Gallery of Scotland." June 24 to September 23, 1990. Coordinated by Andrew Robison. Supported by the Federal Council on the Arts and the Humanities.

"Sargent's *Javanese Dancers*." July 1 to September 30, 1990. Coordinated by D. Dodge Thompson.

"The Sculpture of Indonesia." July 1 to November 4, 1990. Coordinated by D. Dodge Thompson. Supported by Mobil Corporation and the Federal Council on the Arts and the Humanities.

"George Caleb Bingham." July 15 to September 30, 1990. Coordinated by Nicolai Cikovsky, Jr. Supported by Hecht's, a division of the May Company Department Stores, and Monsanto Company.

"Kazimir Malevich 1878–1935." September 16 to November 4, 1990. Coordinated by Marla Prather. Supported by Philip Morris Companies, Inc., and the Federal Council on the Arts and on the Humanities.

Reading Is Fundamental, Inc.

Mrs. Elliot Richardson, Chairman
Ruth Graves, President

Reading Is Fundamental, Inc. (RIF) marked a milestone in fiscal 1990: the 100 millionth book chosen by a child since the program was founded in 1966. This national, nonprofit literacy organization, which is supported by corporations, foundations, private citizens, and a federal contract, brings books and reading activities to young people and involves parents in their children's reading.

Thousands of communities have looked to RIF for help in turning children into lifetime readers. RIF's grassroots network of 3,600 projects is operated by 112,000 volunteers and spans 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. This year, the RIF program brought 7.5 million books to 2.4 million children at more than 12,000 sites, including schools, migrant worker camps, Indian reservations, libraries, housing projects, Head Start and other preschool programs, centers for children with disabilities, hospitals, clinics, and juvenile detention centers.

Volunteers who work in the program say that RIF dramatically changes children's book reading habits and that young people are reading more in their leisure time, becoming more knowledgeable about books and authors, and improving their reading scores. RIF also gets parents involved in their children's reading, in part because more than a third of RIF's volunteers are parents, but also as a result of RIF's Parent Services program. Established in 1984 through a grant from the John D. and Catherine T. MacArthur Foundation, this program encompasses Growing Up Reading workshops for parents, RIF's Parent Guide publications, and a variety of family literacy initiatives targeted to high-risk groups.

Studies continue to underscore the good sense of the RIF approach of motivating children to read. *The Nation's Reading Report Card*, a study conducted by the National Assessment of Educational Progress, noted the importance of having reading materials in the home and indicated that across all age groups "students who frequently read for fun were likely to have the highest [reading] proficiency."

New Programs for Special Groups

This year, the number of RIF projects multiplied as more and more communities looked to RIF to address

First Lady Barbara Bush and children from Reading Is Fundamental projects plant a Children's Reading Tree on the U.S. National Arboretum grounds, during the annual celebration of Reading Is Fun Week. (Photograph by Rick Reinhard)

their literacy needs. About 15,000 youngsters were added to the program, including Native American children of the Apache, Blackfeet, Cherokee, Choctaw, Havasupai, Hopi, Hualapai, Sioux, and Yaqui tribes; preschoolers in Head Start, Even Start, and other early childhood programs; and teenagers in Boys and Girls Clubs. Altogether, RIF launched 505 new projects, most of which are funded by the private sector.

In an effort to bring books to homeless children, RIF organized an Open Book program and called on publishers and booksellers to donate children's books. Foundations, book suppliers, magazine wholesalers, and other groups responded with funding and by sending more than 75,000 books and magazines, which RIF used to set up reading corners in homeless shelters and other facilities serving at-risk youngsters.

The first statewide RIF program was launched in April when Arkansas Governor Bill Clinton announced "Reading Is Fundamental to Arkansas' Future." The goal of the three-year program is to serve every public school fourth-grader in the state by the end of the third year. Book costs will be partly funded through a challenge grant from the Student Loan Marketing Association (Sallie Mae). Local businesses are expected to match these funds on a dollar-for-dollar basis.

In the fall of 1989, RIF, in partnership with the

Chrysler Corporation Fund, launched RUNNING START, a three-year program to bring books and reading activities to first-graders and their families in 10 cities. The 24,384 participating students read 500,000 books, and more than two-thirds of these students each read 21 books or more. "It was hard," one child commented. "That's why I felt so good when I did it."

Following up on the highly successful citywide reading program in Chattanooga, Tennessee, RIF launched a second City of Readers program in Louisville, Kentucky. Like the Chattanooga program, Louisville's City of Readers will expand the existing RIF program and will be designed to get the whole community involved in reading. The program will be housed in the Louisville Free Public Library and has the full backing and participation of city leaders.

Family Literacy Program

During the last six years, RIF has turned its efforts to developing programs targeted to families, particularly those in high-risk groups. Today, according to *Publishers Weekly*, RIF's family literacy program is one of three initiatives with the potential for making "an impact on the literacy crisis."

Since its Family Services program was launched in 1984, RIF has held Growing Up Reading workshops in dozens of cities; distributed 1.6 million copies of its Parent Guide series here and abroad; produced *The RIF Guide to Encouraging Young Readers*; and, through a grant from the John D. and Catherine T. MacArthur Foundation, developed eight experimental family literacy projects. Last fall, one of these projects—a program for teenaged mothers in a Chicago housing project—won a grand prize in the 1989 Family Circle/CPDA (Council for Periodical Distributors Association) Leaders of Readers program. Another project—a bilingual storytelling club for Spanish-speaking families in Washington, D.C.—was honored with a regional award.

In the spring of 1990, RIF announced an innovative two-year program to meet the reading needs of teenaged parents and their children. To signify that teenagers will be involved in their children's and their own reading development, the program is called Shared Beginnings. Oprah Winfrey, television show host and a RIF Advisory Council member, has been named honorary chairperson of the program, which is being tested at 11 sites.

As part of its Growing Up Reading series, RIF conducted three parent workshops last year in Greenville, South Carolina; Arlington, Virginia; and Chattanooga, Tennessee. RIF's Parent Guide publications continued to be in great demand. Last year, for example, the Japanese University of Library and Information Science translated and printed two brochures in the series.

In addition to these efforts, RIF conducted a family literacy seminar hosted by the Prince of Wales for the spouses of international business leaders during a business forum in Charleston, South Carolina.

Special Events

It was an eventful year for children in RIF projects across the country. At the United Nations International Literacy Day in the fall of 1989, RIF Chairman Mrs. Elliot Richardson and children from RIF programs in the New York City area joined guest of honor First Lady Barbara Bush and young people from other countries for storytelling and a RIF book distribution. In October, Massachusetts Governor Michael Dukakis proclaimed October 20 RIF Day and kicked off a statewide "Salute to RIF," featuring poetry, poster, and essay contests for children in RIF projects across the state.

In November, the Duchess of York met with RIF staff to learn about the RIF program and joined RIF children for a festive book distribution at the Children's Museum in Manhattan. In December, RIF acted as go-between in a Books-and-Socks Exchange, in which the children of North Carolina textile workers got books and homeless children from Washington, D.C., shelters got warm socks, courtesy of Mt. Airy, North Carolina, hosiery mills.

In January, a ceremony at the White House commemorated RIF's distribution of 100 million books since the program was founded in 1966. Four RIF children presented a collection of children's books to Barbara Bush. About 300,000 children had earlier sent in the names of the books they would choose as RIF's 100 millionth book, and the collection reflected their tastes.

During the winter months, RIF's sixth annual "In

Celebration of Reading," a nationwide reading campaign, and RIF's fifth annual National Poster Contest drew the participation of nearly a million children. This year, Juan Gonzalez of Alice, Texas, was named National RIF Reader, and Kimberly Connett of Indianapolis, Indiana, was declared poster contest winner.

In March, the Santa Fe Pacific Foundation celebrated a 12-year partnership with RIF in which Santa Fe helps support needy RIF projects located along the railway line. The celebration, which included a RIF distribution, was held in a lounge car, observation car, and dining car, transported to Washington, D.C.'s Union Station from Santa Fe headquarters in Chicago.

In April, RIF held the sixth annual celebration of reading called "Reading Is Fun Week." RIF projects nationwide staged reading events and honored local citizens and organizations for promoting literacy. In Washington, D.C., Barbara Bush joined more than 400 youngsters at the U.S. National Arboretum for RIF Week festivities, which included an award ceremony for the National RIF Reader and National Poster Contest winner and the planting of a Children's Reading Tree on the Arboretum grounds.

The RIF program attracted media attention last year. New public service announcements appeared in newspapers and magazines and on radio and television. Several spots feature Barbara Bush, who talks about her longtime support of RIF. The program was also highlighted on the CBS "School's In" series, designed to inform the public about innovative educational programs, and in a number of national publications, including the *New Yorker*, *Changing Times*, and a new Department of Education study, "Volunteers in Public Schools."

Woodrow Wilson International Center for Scholars

Charles Blitzer, Director

In the wake of dramatic political and economic developments that unfolded throughout the world during the past year, the Woodrow Wilson Center's role as a forum for nonpartisan scholarly research and debate took on growing significance. Since its founding more than two decades ago, the center has stood for eliminating the barriers to communication among scholarly disciplines, between scholars and policy makers, and between Americans and foreigners. As the pace of global change continues to accelerate and as nations and individuals orient themselves in a new world order, the Wilsonian legacy of principled political leadership and an informed scholarly perspective promises to become even more important.

Governance

A highlight of the past year was the appointment of White House Chief of Staff John Sununu to the Woodrow Wilson Center's board of trustees. The center accepted with regret the resignation of J. W. Marriott, who left the board after two and one-half years of exemplary service. In April, Congress amended the Woodrow Wilson Center's founding legislation to increase the number of members on its board of trustees. Two positions were added for private citizens to be appointed by the president, and the U.S. secretary of education is now an ex officio member.

The Woodrow Wilson Center's advisory body of private citizens, the Wilson Council, continued to provide invaluable guidance on many issues that affect the institution's relationship with the private sector. The council welcomed three new members: S. Bruce Smart, Jr., former undersecretary for international trade at the U.S. Department of Commerce and chairman and chief executive officer of the Continental Can Company; Conrad Cafritz, an active member of the Washington, D.C., real estate and philanthropic communities; and Michael DiGiacomo, a New York financier whose field is international banking.

Program Restructuring

In 1990, the Woodrow Wilson Center undertook a major administrative restructuring that has been re-

flected in every aspect of the institution's work. These organizational changes were implemented to encourage work on comparative and cross-cutting issues. Before the reorganization, the center had eight programs, six of them geographically defined, each of which reported to the deputy director and director. The reorganization created three divisions. The first is concerned with the United States and is essentially a continuation of the previous American Society and Politics program. The second is a Division of Regional and Comparative Studies, which includes the other five geographically defined programs: Asia, Eastern Europe, Western Europe, Latin America, and the Soviet Union (the Kennan Institute). Although this division has an elected chairman, each of the programs continues to have its own director. The third division, International Studies, represents a significant broadening of the previous International Security Studies program to enable it to address such global concerns as the environment, communications, economics, and culture.

Another significant administrative change concerns the annual international fellowship competition. The Woodrow Wilson Center has instituted a single application and selection process and no longer requires that applicants apply through one of the programs. Although program directors and members of their advisory councils continue to play a crucial role in the recruitment and selection process, a single review committee now considers the most competitive applications regardless of programmatic affiliation and recommends to the fellowship committee of the board a single list of proposed fellows and alternates. The purpose of these changes is to ensure uniform standards of judgment for all applicants and to provide a fuller opportunity to select the best possible fellows, judged both individually and as a potential community-in-residence. Changes in the application and selection process seem already to be bearing fruit, since the number of applicants in last year's competition increased 60 percent, from about 400 to 640.

Three major staff changes at the Woodrow Wilson Center completed the programmatic and administrative modifications carried out during the year. Milan L. Hauner, most recently visiting professor of history at the University of California, Berkeley, was appointed the new director of East European Studies. He succeeds John Lampe, who returned to his responsibilities as professor of history at the University of Maryland. Lawrence Lichty, professor of radio, television and film at Northwestern University, replaced Phillip Cook as director of the Media Studies Project. Finally, the Wilson Center was pleased to welcome former Smithsonian Under Secretary Dean Anderson as its new deputy director for planning and management. He succeeds Jon Yellin, who in September became vice president for finance and management at the City College of New York after five years of service to the Wilson Center.

Conferences and Meetings

The dramatic occurrences that are reshaping Europe and the Soviet Union set the tone for many of the meetings and conferences held at the Woodrow Wilson Center in the past year. Whether planned a year in advance or quickly organized in response to world events, the programs all took advantage of the Wilson Center's international network of former fellows and were characterized by the historical perspective and intellectual rigor for which the center is known.

The largest and most formal conference addressing the state of the post–Cold War world was called "The Helsinki Process and the Future of Europe." Scholars and practitioners from the United States and many Eastern and Western European nations gathered to examine European security and alliance politics, Western European economic integration, Eastern European economic restructuring, and legal safeguards for human and political rights. Woodrow Wilson Center trustee Ambassador Max Kampelman presided over the meeting, which was organized by Deputy Director Samuel F. Wells. Participants included U.S. Representative Steny Hoyer, Polish Solidarity Party leader Bronislaw Geremek, French ambassador Jacques Andreani, and Horst Teltschik, foreign affairs and national security adviser to West German Chancellor Helmut Kohl. The results of the conference were published in August as the first in a new series of Woodrow Wilson Center Special Studies.

Other meetings on the changes in Eastern Europe ranged from noon discussions to formal conferences. The Woodrow Wilson Center's Kennan Institute was a major forum for the wide range of voices emerging from the various nationalities and ethnic groups in the

Soviet Union. Just after the fall of the Berlin Wall, a group of fellows from Eastern European countries spoke to a packed room about the political and economic changes sweeping their countries. Soviet emigré novelist Vladimir Voinovich regaled an Evening Dialogue audience with his satirist's view of Soviet society. The East European Studies program organized a major conference on public health and the environment, which examined the current and potential health hazards posed by the extensive air, ground, and water pollution in that region. A delegation of Cuban scholars met with U.S. colleagues to discuss the impact on Cuba of changing superpower relations.

Outreach and Public Affairs

While debate at conferences and meetings is necessarily limited to event participants, outreach activities ensure that the results of Woodrow Wilson Center programs are made available throughout the nation and the world. The center conducts an active program of publishing and public affairs to reach a broad, nonscholarly audience outside of Washington.

In collaboration with Cambridge University Press, the center publishes the Woodrow Wilson Center Series. Two volumes in the series, *Origins of Terrorism: Psychologies, Ideologies, Theologies, and States of Mind* and *The State and Economic Knowledge*, were issued during the year. The center also publishes books through its own Wilson Center Press. Volumes published in 1990 included *Problems of Balkan Security, Portugal: Ancient Country, Young Democracy*, and *Government and Environmental Politics*.

To reach the broadest possible audience, the Woodrow Wilson Center several years ago established Radio DIALOGUE, a weekly interview program broadcast by National Public Radio and the Texas Longhorn Radio Network. With a new production studio and enhanced distribution capabilities, the program has increased its national coverage from 58 to 112 stations. During the past year, 50 fellows and staff members discussed such diverse topics as Congress and the courts, Eastern Europe in transition, Caribbean politics and culture, and the opera and Russian history.

Fellows

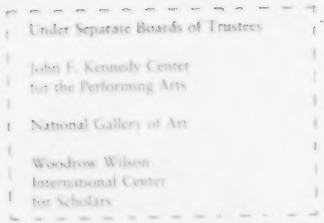
At the core of the Woodrow Wilson Center are its fellows, and their accomplishments last year continued to be impressive. For the second year, the National Book Award for nonfiction was awarded to a former fellow for a book written substantially at the Wilson Center—Thomas Friedman for *From Beirut to Jerusalem*.

After a year of political upheaval, many of Eastern Europe's top intellectuals emerged as leaders in fledgling democratic governments; several of these scholars were once Woodrow Wilson Center fellows. Bronislaw Geremek, who studied medieval Polish gypsy life while a fellow at the Wilson Center, was elected the Solidarity Party's floor leader in the lower house of the Polish parliament. Czech economist Karel Dyba became an economic adviser to the Czechoslovakian vice premier. Another former fellow, sociologist Balint Magyar, won a seat in the new Hungarian parliament after participating in Hungary's first free elections in more than four decades, while former guest scholar Geza Jeszensky was appointed Hungary's minister of foreign affairs.

Also in the past year, two recent fellows were appointed to important international positions. Geir Lundestad was named director of the Nobel Institute and secretary of the Nobel Peace Prize Committee, while Ibrahim Gambari was made the Nigerian ambassador to the United Nations. These fellows represent tangible evidence of the Woodrow Wilson Center's success in linking scholarship with public affairs.

President Wilson once wrote, "The man who has the time, the discrimination, and the sagacity to collect and comprehend the principal facts, and the man who must act upon them, must draw near to one another and feel that they are engaged in a common enterprise." The challenges facing our nation and the world in the coming years are ones that Woodrow Wilson would have relished, both as scholar and as statesman. During the past year, the Woodrow Wilson Center continued to bring together the best of the worlds of learning and public affairs to explore Wilson's vision of "continuous protection of liberty by the concerted powers of all civilized people."

SMITHSONIAN



*Secretary's Management Committee.

**The assistant secretaries for research and museums collaborate in the oversight of scholarly and presentational activities in these bureaus and offices.

July 1990

INSTITUTION

BOARDS AND COMMISSIONS

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Smithsonian Resident Associate
Program

Cover: Computer graphics are becoming increasingly commonplace in today's society, helping people enhance and expand their imagination and creativity. These computer-graphic images by leading graphic artists R.R. Greenberg and Robert Abel are part of a 12-screen video wall in a new exhibition, "Information Age: People, Information & Technology," at the National Museum of American History. (Photograph by Eric Long)

Frontispiece: *Two Public School Teachers* was included in the National Portrait Gallery's exhibition "To Color America: Portraits by Winold Reiss." The German-born artist came to America in 1913 and over the next 40 years produced notable portraits of American Indians, African Americans, Asians, and Mexicans. (Courtesy of Fisk University, Nashville, Tennessee)

∞ The paper used in this publication meets the minimum requirements of the American National Standard for Permanence of Paper for Printed Library Materials Z39.48-1984